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MUNICIPAL MARKETS

Effect in Reducing Retail Food Prices in Several Cities.—Direct Retailing Without Licenses.—Distribution Costs.—Middlemen's Profits.—Trolley Freight, Better Terminals and More Liberal Ordinances.

A few months ago the director of public works of Philadelphia, Morris L. Cooke, requested Clyde L. King, of the Wharton School of Finance and Commerce of the University of Pennsylvania, to investigate conditions and report upon any measures which the city might take to lower the price to consumers of farmers' produce. The report which Mr. King has submitted covers 56 pages, and is divided into considerations of "Producers' vs. Consumers' Prices," "Trolley Freight Service," "Statutes, Ordinances and Licenses," "Distribution Within the City," and "Markets."

Among the facts brought out it is shown that in Philadelphia, noted as a city of low prices for good food, the consumer pays from 76 to 266 per cent. more than the producer receives, the average being 136 per cent. A table shows that for live poultry the farmer receives 6 cents, to which is added $\frac{1}{2}$ cent for freight, $2\frac{1}{2}$ cents jobber's profit, 2 cents wholesaler's profit and 11 cents retailer's profit. High grade eggs brought the farmer 21 cents to which was added one cent for freight, 2 cents for jobber's profit, 3 cents wholesaler's profit and 8 cents retailer's profit. According to this, chickens could be delivered by our new parcels post, netting the

farmer one-sixth more and costing the consumer just one-half as much. Averaging all the produce listed in the table, the farmer receives 44 per cent. of the retail price, the transportation company 2 per cent., the jobber 5 per cent., the wholesaler 6 per cent., and the retailer 43 per cent., or practically as much as the farmer.

The present situation in Philadelphia is discussed, pointing to the need for a different policy on the part of the city's municipal markets, and to the need for more stringent regulation of existing markets, and for the development of a terminal, wholesale market and of municipal markets in those sections of the city which now lack such facilities. "The further development of city markets should come only after it is clear that the same ends cannot be attained through stringent regulation of existing markets and through statutes and ordinances that will do away with certain abuses. The essential and significant part of the city's policy should be the development of transportation and distributing facilities as indicated above. With a proper scheme of distribution within the city, markets may be needed in sections where no markets now exist."

The main recommendations of this report are as follows:

1. Better through service from farm to city with special attention to the development of a through trolley freight system.

The city's good offices can be effectively used to develop a trolley freight system that will reach out in every direction from the city and bring in farmers' produce direct from producer to consumer.

2. The withdrawal of all restrictions upon and the abolition of the requirement of licenses for bona fide farmers who may wish to sell in Philadelphia either their own goods or the goods of any other bona fide farmer.

The amendment of the state statutes allowing this to be done would only very slightly reduce the amount received by the state from the mercantile tax, and would only slightly, if at all, reduce the amount received from the fifty-cent fee payable to Philadelphia. I think it would also but slightly reduce the amount received by the city from vendors' licenses (\$23,710 in 1910), which I see no reason for repealing, save for bona fide farmers. While the farmers should not be exempt from the laws essential to the protection of the city's food and health, yet everything possible should be done to allow them to get their produce into the city and to the door of the consumer with the least inconvenience and cost. It is these small things that inhibit the average farmer in the outlying districts from making the most of Philadelphia's markets.

3. Stringent regulation of existing markets, coupled with the development of municipal markets, where needed.

Neither producer nor consumer receives adequate encouragement or protection under the existing ordinances pertaining to markets. The markets are practically unregulated, and adequate encouragement is not given to small farmers who must come in long distances. Worthy of consideration is the erection of a municipal wholesale house, out of which freight could be taken directly to all sections of the city. This market would be essential, provided adequate regulative legislation cannot be secured corrective of certain abuses. It may also appear later that the establishment of municipal markets in certain sections of the city where markets do not now exist would be advantageous both to farmers and consumers.

4. The development of trolley freight terminals in different sections of the city, so that produce may be shipped direct from the producer to the consumer or to markets and retail stores.

One of the big factors in Philadelphia prices is the long haul from terminals. The development of a sufficient number of trolley freight terminals will largely overcome these costs. Such terminals will serve the retailer, the markets, the middleman, through rapidity of turn-overs, and the producer who wishes to ship his freight from a distance direct to his place of sale.

5. A thoroughgoing revision of the present transportation and distributing facilities in order to get produce more cheaply from farmer to consumer.

Unless a system is created whereby a larger per cent. of the produce consumed in Philadelphia can be brought from the outlying regions to each section of the city without the interference of middlemen, and heavy transportation costs, the city will not be materially affected. For instance, the newspapers heralded the 100 per cent. reduction in express rates as a direct blow to high prices, and predicted in glowing editorials that the consumer would reap the benefit of the reduction. Because of the fact that the produce brought in by express does not bear a sufficiently large ratio to the total amount of produce consumed in the city to materially affect the supply, this reduction in rates probably will not, unless accompanied by other action, have any effect on consumers' prices; that is, the reduction in rates will go wholly to the jobber and the producer. A thoroughgoing transportation system between the outlying counties and Philadelphia should be developed, so that it would be at least possible to get produce more cheaply from farmer to consumer.

Concerning markets Mr. King commented as follows:

There are in Philadelphia over twenty markets. The city's two municipally owned markets are not administered primarily with the thought of bringing consumer and producer together. Nor do the city's ordinances and regulations pertaining to private markets tend to secure reasonable prices and reasonable regulations. For instance, the ordinances prohibiting the vending of meats in certain sections of the city; the ordinances providing that each farmer must sell his own meats only; the ordinances providing that meats offered for sale at curbstone markets shall not be offered "in a less quantity than a quarter of the animal," and other similar ordinances, all tend to prevent competition at the markets and to prevent the farmer from readily disposing of his produce directly to the consumers.

At the markets, the municipally owned markets included, market associations make regulations to "protect" the renters of the stalls. In almost all of the markets, however, the number of farmers is exceedingly small. Thus, in the old South Second Street Market, I could not find over six. The result is that the markets as a rule are not really farmers' markets in the old sense of the word, but groups of retailers. Therefore the farmers urge that all too often the associations protect the retailer rather than the bona fide farmer. The result is that prices at the markets do not materially differ from prices in the various retail stores throughout the same section of the city. It may be urged that if the farmers do not wish to use the stalls in these markets they can use curbstone markets. But the curbstone markets do not have the advantages of the covered markets, and the farmers who must come in long distances on regular days cannot, therefore, advantageously patronize them.

The general result of these conditions, and of the other conditions heretofore discussed, is that a surprisingly small number of farmers take market stalls, or attempt to sell in other ways directly to the consumer. Indeed, farmers do not play any appreciable part in over ten of the forty-seven wards of the city, and in these ten wards they do not sell to over 10 per cent. of the people. Most of the farmers in the outlying counties either sell to the jobber or ship to the commission men, or turn professional hucksters, as required by the statutes and ordinances already discussed, bringing in the produce of other farmers as well as their own and "serving a route" in the city, sell direct to consumers. The farmers who sell direct to the consumers, as well as those who sell from stalls in the markets, charge the highest current prices. Under the present system, that is, the farmer is not a competitive factor in setting prices for Philadelphia consumers.

City ordinances give relatively no protection to the market purchaser, nor to the bona fide farmer. For instance, there is nothing to prohibit any retail dealer from taking a stall in any private or municipal market and representing himself as a farmer who sells his own produce. This is not characteristic of all the markets, but it does characterize so many of them that purchasers are made to feel that there is no guarantee that by frequenting the markets they can surely buy from a bona fide gardener or farmer. For instance, there are many men at certain markets with large signs proclaiming themselves to be "Bucks County," "Montgomery County" or "Lancaster County" farmers, who have no farms and who either purchase their goods at the wharves at wholesale or are merely jobbers who spend three or four days in some neighboring towns, such as Lancaster, buying produce from the farmers and then selling it at their stalls on market days as their own produce. The result is that the bona fide farmer and

the honest dealer, who will not profess to be a farmer, are both put to a great disadvantage and the consumer is forced to conclude that there is no advantage to be gained by buying at the markets.

The city ordinances should be so amended as to give adequate protection to the bona fide farmer or gardener. The ordinances might well require that none but bona fide farmers or gardeners could display signs proclaiming themselves as such, and could require adequate inspection by city inspectors, with heavy penalties for violation. I would suggest an ordinance providing a fine of \$500 or thirty days' imprisonment for each and every such violation.

It is needless to point out also that the city ordinances do not require proper inspection of weights and measures. The clerk of a market house is not a proper official to see that measures are properly labeled and are honest measures. The bona fide farmer, the honest retailer and the consumer should be more adequately protected through a bureau of weights and measures.

In general, there is special need for stringent regulation of existing markets and more thoroughgoing ordinances for the doing away with fakes and securing honest goods at reasonable prices.

There are many things short of the establishment of municipal markets that the city can do to secure better prices for farmers and for consumers. But there is no doubt that the establishment of such markets, coupled with the stringent and thorough regulation of existing markets, would have a wholesome effect on consumers' prices. I wish to emphasize the fact, that, while there are weaknesses in the system of getting goods from producer to consumer, yet it is the system that is to blame, and not any given set of middlemen.

Several cities in the United States have tackled the "cost of living" problem by the establishment of municipal markets. These markets have not only lowered prices, but have proved profitable to the city.

The Baltimore markets were established in 1857, and consist of one chief market, the Lexington Market (the largest and finest in the United States) and ten subordinate markets. The total expenditure on the Baltimore system of markets from 1857 to 1911, inclusive, was \$2,459,617.03, while the total receipts and credits amounted to \$3,207,918.71, making a net gain to the city for the fifty-four years of \$748,301.68, or an average per year of about \$13,860. The receipts for 1910 were \$74,452.35, the expenses \$3,910.36, making the net receipts \$70,541.99. The receipts for 1911 were \$72,929.41, the expenditures \$3,914.18 and the net receipts \$69,015.23. In New Orleans the revenue from the city's leased markets is \$185,000 a year, while the revenue from the markets of its own, which the city provides, is \$10,000 a year. The city possesses a monopoly on the markets, and the few private enterprises that exist are under the right of reversion to the city. Boston's market nets a profit of \$60,000 a year. According to a special report of the Census Bureau of 1905, 54 of 158 cities in the United States having a population of 30,000 or over made returns of market receipts and expenditures for the year 1907. In the twenty-five cities whose receipts amounted to \$10,000 or over the total receipts for markets aggregated \$1,252,405; or \$865,237 more than the expenses of maintenance. The profit from the Liverpool market in 1911 was \$85,000, while for the Glasgow market in 1908 the profit was \$14,000. There is little evidence, therefore, to indicate that a system of municipally owned markets would not be a wise investment for the city. Indeed, the grave danger would

be that they would be used for revenue and, as at present, stall rentals would be made too high in order to make the markets heavy revenue bearers.

By the establishment of municipal markets in Des Moines, Iowa, producers have received approximately 50 per cent. more for their produce than the commission men paid them before, while the city buyers have been able to purchase their produce for approximately 50 per cent. less than they formerly paid.

New York's Market Commission is advocating a terminal, wholesale municipal market for New York City. This commission has pointed out that large quantities of food supplies are carried past their point of destination to a distributing center and back again.

New York City's plan comprises a six-story market building. It is urged that this scheme will relieve congestion in several parts of the city, will provide a conspicuous place for producers to send to, will provide an economic stand so that they can sell cheaper, will make it possible for licensed gardeners and farmers to sell their articles of food, will provide better refrigeration and storage facilities, will reduce the cost of distribution, provide sanitary conditions for handling food stuffs, permit segregation of live poultry, provide for storage of food in time of plenty against time of scarcity, eliminate two classes of middlemen between the producer and consumer, and put the control of the food supply under the public authority.

Such a plan, coupled with the development of branch markets, has long been tried out most successfully in certain cities in Europe. Thus, in Budapest, the market system consists of a wholesale central establishment, with six branch retail markets. The markets are under the control of a municipal commission. Low rentals are charged. The result is a very definite improvement in the distribution and cost of the city's food supply. The market system of Paris includes a large central market with thirty-three small public markets. The results of the system seem to be beneficial in every way. Standards of price and quality are assured, exchanges are for cash, and the products are guaranteed through efficiently administered sanitary regulation.

In these foreign cities, as in the American cities where a similar plan has been adopted, the universal history has been that the branch markets have decreased in significance and the central wholesale market has increased in importance.

My own feeling is that the field of the city market is pretty definitely limited; that far more important than the establishment of municipal markets is the establishment of the transportation facilities into and out of the city described above, the development of distributing facilities and trolley freight terminals within the city, and the stringent regulation of municipal markets and of weights and measures.

Since the greater part of our population must spend from 40 per cent. to 50 per cent. of its income for food, it would seem that the city should be ready to take constructive steps whereby that food can be secured as cheaply as possible. These steps can be linked with measures that will, at the same time, lead to more intensive cultivation in the farms roundabout. The development of transportation facilities into the city, the taking away of all restrictions upon farmers selling within the city, the providing of adequate distributing facilities so that the farmer can get his produce direct to every section of the city, will save time to the farmer, give him better prices for his products, and, by selling either to the retailer or directly to the consumer, will make possible a lowering of consumers' prices.

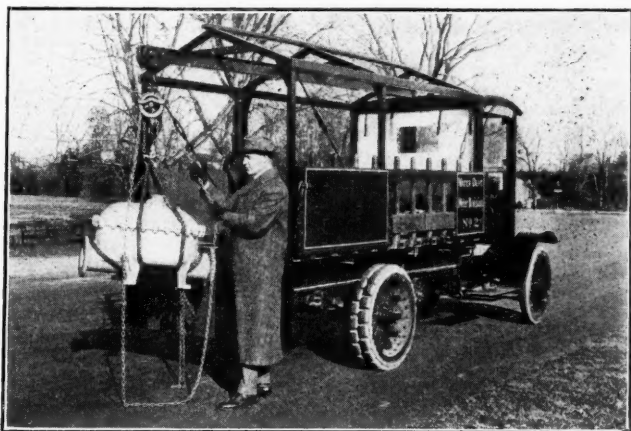
WATER DEPARTMENT AUTO APPARATUS.

An automobile truck which will do the work of five wagons is one of the latest acquisitions of the St. Louis Water Department. The truck is used in the meter and tap division, the body having been especially constructed along lines suggested by Fred L. Bock, superintendent of this division of the department.

The most novel feature of this truck is its projecting I-beam, which takes the place of derricks used with the wagons. Water meters can be removed or set very rapidly by the use of the truck and the overhead beam. The truck is a Federal, equipped with a four-cylinder motor, $4\frac{1}{4} \times 4\frac{1}{2}$, thirty horse power. The total weight of the machine is 5,500 pounds, the weight of the chassis alone being 4,000 pounds.

Upon the purchase of the chassis, the Water Department let a contract for the construction of the stake body with the overhead rail of four-inch I-beam to accommodate a one-half ton trolley and chain block. The cost of the chassis was \$1,875 and the additional work cost \$208, making a total cost of \$2,083.

In using this truck, the derrick is dispensed with. The machine backs up to the curb near which the meter is located and, by making use of the projecting rail, one man can load a six-inch meter weighing one-half ton in less than two minutes. Two men were supplied with each wagon heretofore; but four, in addition to the driver, accompany the truck. With these five men the truck covers from twenty to thirty miles a day in portions of the city where the places to be visited are scattered, and about ten miles while working in the downtown district. The machine makes a speed of fifteen miles an hour.



AUTO TRUCK HANDLING METER.

At the present writing, the truck has been in use only two weeks, but the following comparison, based on its use during this short time, will give an idea of the relative cost of the work as done by the truck and by the wagons:

Monthly maintenance cost per wagon with two men	\$ 140.00
Multiply by five (the truck replaces five wagons)	700.00
Monthly maintenance cost of truck (liberal estimate)	85.00
Salaries of one driver and four men	315.00

Total for truck	\$400.00
Initial cost of truck	\$2,083.00
Initial cost of five wagons and horses	1,900.00

A large Alco truck was recently placed in service to distribute pipe and fittings in all parts of the city, which greatly facilitates the work. Three runabouts have been provided for the superintendents of the different divisions of the department, enabling them to oversee twice the amount of work and to respond to trouble calls

much more quickly than formerly when buggies were used.

The large volume of work done under the direction of the distribution division is indicated by the contracts for the eight months of the fiscal year beginning April, 1912. These include the laying of 11 miles of six-inch pipe, $4\frac{1}{2}$ miles of eight-inch pipe, 2 miles of twelve-inch pipe, $1\frac{3}{4}$ miles of 20-inch pipe, $2\frac{1}{4}$ miles of 36-inch pipe; making a total of 26 miles of contract work done. The expenditure for these eight months for the purchase of pipe and fittings and for laying same amounted to \$413,657. In addition to this contract work, the distribution division has itself laid four miles of six-inch pipe, one mile of twelve-inch pipe and lowered three miles of mains. This unusual amount of new work was done in addition to the usual amount of routine work in taking care of connections, leaks, changes, etc., and the building of three new sub-stations.

NEW KIND OF ASPHALT PAVING.

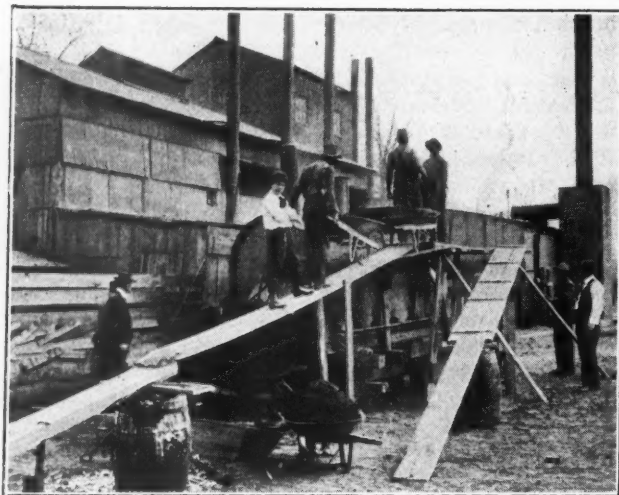
In November, 1912, the paving of Sledge avenue, Memphis, Tenn., the travel on which is said to be very heavy, was begun, a new paving material known as "fibred asphalt" being used as an experiment. This street had been paved about six years ago with four inches of gravel, which had been allowed to get into a very bad condition, having been worn entirely through to the earth in many places. One of the illustrations shows several of these holes. In beginning this paving these holes were filled with a bitumen-stone mixture, which was thoroughly rolled; some of the same material being used also for giving the desired crown to the gravel road, which was permitted to serve as a base for the new surface material. Before applying the surface material, one stretch of the old road was painted with asphalt at a cost of 4 cents a square yard, but it did not appear that this was essential.

The fibred asphalt was deposited hot on the gravel road thus surfaced off, it being placed to a depth of four inches at the center, which compacted under rolling to two inches, but running off to a feather edge on each side, with no curb at the edge or any kind of shoulder to retain it. It is proposed, however, to use curbs for the rest of the construction. This surface is sixteen feet wide.

The fibred asphalt, which is a mixture of asphalt and pitch with prepared wood fibre, was reheated, carried to the road and spread and then rolled with a 5-ton roller and afterwards with a 10-ton roller, when it was immediately thrown open to traffic. In fact, in laying the pavement shown in the photographs, the street was not blockaded and traffic on it was not interrupted, except that heavy drays were required to wait until the 10-ton roller had passed over the material at least once. As



GRAVEL ROAD, WITH HOLES PATCHED.



THE EXPERIMENTAL REHEATER.

soon as the 5-ton roller had compressed the material about one-third in thickness, sand was spread over it as lightly as possible before the 10-ton roller was used. This was the only treatment of the surface, no painting or sprinkling of screenings being employed.

In this construction a temporary reheating machine was employed, from which the material was carried to the road in wheelbarrows. In future work, including the construction of the Country Club road, where the roadway will be fifty feet wide, the prepared material will be placed in piles along the roadway, and a reheating machine employed which will travel along the road. The machine will be provided with endless belt conveyors which will deliver the cold material continuously into the hoppers. It will also be provided with a spreader attachment which will deposit the reheated asphalt directly upon the roadway. It requires four minutes for the material to pass from the hopper to the rear of the machine, and it is claimed that 10,000 square yards per day of pavement can be laid with one machine. This high rate is of course made possible because the machine does no mixing, but merely supplies sufficient heat to the asphaltic material to permit a proper compression and adhesion to the base.

The advantages claimed for this material are that it will stand great abuse, is easily and economically handled, and can be laid very quickly and satisfactorily. Also that it is possible to carry it seven to ten miles from a stationary heating plant without too great loss of heat or injuriously affecting its binding qualities.

SALARIES OF FIREMEN.

Owing to the diversity of methods existing in classifying fire department employees in various cities, it is a difficult matter to compile a really fair and instructive table showing the salaries of the "privates," or rank and file. Below is the result, reduced to its simplest terms, of an investigation recently made by the Municipal Reference Library of St. Louis:

City.	Max salaries of privates.	Privates include	Force graded.	Remarks.
San Francisco.....	\$1,440	Truckmen, drivers, stokers and hosemen.....	Yes.	
New York.....	1,400	1st grade	Yes.	
Chicago	1,371	1st class	Yes.	
Cleveland	1,218	1st grade	Yes.	
Buffalo	1,200	Drivers and 1st grade firemen.....	Yes.	
Portland, Ore.....	1,200	Stokers and hosemen	Yes.	
Boston	1,200	Privates (highest grade).....	Yes.	
Pittsburgh	1,200	Hose and laddermen, 5th year.....	Yes.	Drivers get \$1,260.
Milwaukee	1,140	Pipemen, truckmen, drivers	Yes.	10 firemen, \$1,200.
St. Louis.....	1,140	Firemen, drivers, pipemen, fuel wagonmen and laddermen.	Yes.	
Denver	1,140	4th year men	Yes.	
Detroit	1,100	3d year men	Yes.	
Philadelphia	1,100	Firemen, hose and laddermen, drivers.....	Yes.	Firemen not graded.



SPREADING SAND OVER THE FIBRED ASPHALT.

In practically every case almost all members of graded forces receive the maximum salary, since length of service is the factor determining grade. The size of the city has not much influence on the amount of salary paid. San Francisco, the 11th city in size, pays the highest salary of any place investigated. Philadelphia, the 3d, pays less than Portland, Ore., the 28th. Of course a more exhaustive investigation might reveal facts that would tend to lessen these inequalities.

STREET OILING IN NEW HAVEN.

By HERBERT M. SEDGWICK, Mayor's Secretary.

Three years' experience in street oiling has given uniformly satisfactory results in the city of New Haven, Connecticut. In 1910, W. Scott Eames, Director of Public Works, covered a total number of 1,640,267 square yards, reduced to one time over, at a cost of \$.0123 per square yard each time over. In 1911 he covered 2,699,057 square yards, reduced to one time over, at a cost of \$.0099 per square yard each time over. In 1912 he covered 4,247,047 square yards, reduced to one time over, at a cost of \$.0058 per square yard each time over. The reduction in cost to less than $\frac{1}{2}$ the cost per square yard in 1910 is regarded as a noteworthy achievement.

Most of the other Connecticut cities and representatives of the Connecticut Highway Commission have visited New Haven to study its system of street oiling.

In 1912 a few streets were done over four times during the season and the great majority were done three times over, while in 1911 comparatively few were done as many as three times over. In 1910 the oils used were Indian Refining Company and others. In 1911, Standard and Texas were used, and in 1912 only Texas.

The following table shows the cost for the three years:

	1910	1911	1912
Oil	\$10,246.27	\$12,979.06	\$12,643.60
Labor	6,989.51	11,372.33	10,101.63
Incidentals	2,976.66	2,514.30	1,810.66
Total	\$20,207.54	\$26,865.69	\$24,555.89
Square yards covered	1,640,267	2,699,057	4,247,047

Four automatic power sprayers were used in 1912 as against the old method of oil sprinklers employed the two first years that the system was tried.

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CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for. Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

JANUARY 16, 1913.

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State Tabulation of Municipal Finances.

Massachusetts is one of the few states which, through bureaus or departments, to a greater or less degree supervise the financial accounts of its municipalities. We believe this is well worth while, and that in each of the states where it has been attempted beneficial results are already being realized. In his latest report Charles F. Getteny, director of the Massachusetts Bureau of Statistics, says that the mere requirement that financial returns be made annually by each municipality has "had a very wholesome effect throughout the Commonwealth, and for the very natural reason that the inquiries made on the schedules sent out from this office have brought vividly to the attention of local accounting officers the inability of their books, as kept, to reflect facts of vital importance, thereby forcing them to consider a reorganization of their methods." Many cities and towns have, since this bureau began its work, learned for the first time just how they stand financially; and a comparison with other municipalities has enlisted both local pride and self-interest in improving matters. As an illustration, we find that of the thirty-three cities one is required to pay out 42.4 per cent. of its income in interest charges and debt requirements, while another is obliged to devote only 15 per cent. in this manner. Manifestly the former must endure a high tax rate for several years

or forego many desired improvements. Had the matter been forced to its attention years ago by public annual reports, which would bring out such points, it might have taken warning and escaped the present dilemma.

In the itemized tables we find the receipts and expenditures of each city for sewers, water, streets, lighting, fire, police, etc., the value of which would be increased many fold if it could also be stated what the taxpayers received for their money in each case. We hope the day will soon come when uniform physical statistics universally kept will render such information available.

Uniformity of Paving Brick.

The communication below is the second which we have received upon this subject, and a third has been received (too late for publication in this issue) which we will publish next week, accompanied with further comments of the editor.

Gentlemen:

Referring to the editorial in your publication dated December 26, 1912, entitled "Pavement Testing in Detroit," we think this editorial is misleading enough to really call for a correction. You refer to the "apparent fact" that the standard rattler method of testing brick leaves something to be desired in determining the best brick for paving purposes. The apparentness of this, however, we believe, is yet to be determined. Neither do we believe that non-uniformity is the weak point of the standard test.

Our opinion is that when an engineer specifies 22 per cent. 1911 rattler, he desires a pavement as good as 22 per cent. and no better. The fact that a part of the bricks are certain to be better than the 22 per cent. does not enter into the matter.

In our opinion, no engineer has a right to figure upon a brick pavement wearing down uniformly. We believe that an inch from the surface of the brick pavement is all that any municipality or engineer has a right to expect. Further, when the weakest brick in such a pavement—those going exactly 22 per cent.—begin to wear out and lose their entire upper surface, then the city has received full value for its money, and whatever value or service is gotten from the pavement afterward is simply gratis and not to be calculated upon.

Your proposition of submitting brick for testing not over 2 per cent. either way from a given point is utterly impractical. We venture there is no manufacturer can name the rattler test upon fifty per cent. of his own output within four points. Our sorters in working the 22 per cent. make that their maximum, and in so doing we have repeatedly proven that quite a number of brick testing less than 22 per cent. go into the second grade. It is thus possible for a sorter to work to a maximum, but if he also works to a minimum he would get out very few bricks of the grade specified. I am speaking now of the man who does the work of sorting the brick. They are the boys who must do the business, and, therefore, brick pavement must be kept within their limitations.

The article appearing in the same issue, showing 21 per cent. brick and 22 per cent. brick in the testing machine, sounds merely foolish to experienced brick men. It is not possible to take fifty brick and say that these rattle 21 per cent., because they may rattle 22 per cent. or 23 per cent. or they may be mixed, and anyone's belief that a certain set of brick rattle 21 per cent. and another set 22 per cent., in our opinion, is the very froth of theory.

The first inch of surface is the maximum, which any engineer has the right to expect from a brick pavement, and this one inch of 22 per cent. brick is equal in service, in our opinion, to from three to ten times the length of service gotten by any asphalt pavement under the same conditions of traffic.

This explains the action taken by the Western Paving Brick Manufacturers' Association in standardizing the 3-inch depth paving brick, instead of the previous standard of 4-inch depth. Since one inch is all the city should expect to use, 2 inches of brick beneath this one inch is all that should be used to support it.

Sincerely yours,
W. G. BUCKLER, Treasurer,
Coffeyville Vitrefied Brick and Tile Co.

NEW TAR COMPOUND FOR ROADS.

Coal tar gets soft at high temperatures and brittle at low ones; also slippery. It is therefore not well adapted for replacing the more expensive natural asphalt for road improvements, unless its properties may be changed by some suitable and inexpensive process. By subjecting it to the chemical action of sulphur, imitations of asphalt have been produced from it, but they cost as much as the natural asphalt. Other processes consist in the addition of mineral substances, but the mixture is usually uneven and defective because the mineral substances, by reason of their higher specific gravity, have a tendency to collect at the bottom of the mass. Admixtures of organic substances, such as pulverized charcoal, cork powder and sawdust, have resulted indifferently. But it has now been found at the Lindenhof Chemical Works that the tendency to segregation of mineral admixtures can be obviated if a vegetable and a mineral admixture are incorporated in the mass simultaneously. The physical action obtained by this means is that the organic substances coated with the tar resin hold the heavier mineral matter in suspension, and a chemical action is also effected, as the cellulose of the organic ingredients forms viscous compounds with the tar at the temperature at which the mixing is done.

The following is mentioned as a suitable method of proceeding: In a vat with a stirring mechanism 1,000 parts of tar are heated to 150 to 180 deg. C. To this there are added 200 to 300 parts of fine sawdust and 400 to 500 parts of ground chalk. Stirring is continued, without exceeding the temperature of 180 degrees, until the mass is homogeneous. Wood chips or shavings may be used instead of the sawdust and marl or ashes instead of the chalk.

The viscous mass obtained can be run into molds and used like paving blocks or can be used directly in road construction. Like natural asphaltum it can be rolled, either cold or hot, into a uniform, coherent and elastic layer, if a firm foundation is provided and heated rollers are employed. The new composition is said to resist wear, heat and cold, undergoing no contraction in cold weather and being always impermeable to water, heat and sound.—From *Revue des Produits Chimiques*, December.

HATPIN LEGISLATION.

The "deadly hatpin" has been the subject of legislation, successful or otherwise, in various American and foreign municipalities. Little has been accomplished on this side of the water, however. Chicago has dealt in a summary manner with the situation, as will be seen from Section 1990 of the 1911 Code, quoted below:

"No person while on the public streets or ways of the city, nor while riding upon any street or elevated railroad car running from place to place within the city, nor in any elevator operated in any building in the city to which the public is admitted, shall so wear any hatpin that the exposed point thereof shall protrude more than one-half inch beyond the crown of the hat in, upon or through which such pin is worn."

A maximum fine of \$50.00 is provided for each offense.

In New York a gentleman who appealed to Mayor Gaynor not long ago for protection against the points of women's hatpins was advised that the Mayor had no power in the matter, and that a man who got his face close enough to a lady's head to get scratched deserved all he got in the way of wounds. "Bench and Bar" takes issue with the Mayor on this point and ventures the opinion that it is neither sound ethics nor law.

Los Angeles came very near having a drastic ordinance on this question. A fine not exceeding \$500.00, or imprisonment for a maximum of six months, or both,

was the penalty to be imposed upon women allowing hatpins to protrude more than one inch from the crowns of their hats. At the last moment this bill was laid on the table by the City Council, after several thousand hatpin guards had been ordered by jewellers.

A hatpin bill was recently introduced in the Municipal Assembly of St. Louis, passed by one branch but lost in the other. In public places hatpins must not extend into the air more than six inches, and violation entailed a fine of from five to one hundred dollars. One objection to the bill made by its opponents was that it was "freak" legislation.

Abroad the question has been dealt with more successfully. In Hamburg, Germany, street car conductors are provided with corks, and wearers of long hatpins must either buy the corks and use them as guards or get off the car. In Zurich, Switzerland, a law went into effect about a year ago prohibiting the wearing of unprotected hatpins, owing to the numerous accidents that had taken place. In one day 110 arrests were made, the fine in each case being five francs. Sydney, New South Wales, has a hatpin ordinance, which is evidently being enforced under great difficulties. Not long ago, 60 women were convicted in one day, and rather than pay their fines these women went to jail, declaring that they would not submit to "iniquitous and unnecessary" legislation.

For the above information we are indebted to Andrew L. Bostwick, municipal reference librarian of the St. Louis Public Library.

LARGE WATER USERS.

The Bureau of Water of Philadelphia is issuing a series of pamphlets intended to educate the people in the affairs and needs of the water service of the city. One of these deals with the amounts paid for water by all the consumers whose bills exceed \$200 a year. The amount of water used by some of the large city consumers is startling. For instance, the Pennsylvania Railroad Company pays about \$41,000 a year for water and the P. & M. Railroad about \$50,000. A steel works pays \$30,000; John Wanamaker (department store) about \$11,000; and others (to the extent of two pages) pay \$2,000 or more per year.

In this pamphlet are published figures from a number of other cities, also, to be used in comparison with Philadelphia quantities and rates. For instance, the Rapid Transit Co. pays Philadelphia about \$32,000 a year, while the Interborough Rapid Transit Co. pays New York City \$111,000 a year. The hotels seem to get off very lightly in Philadelphia, the amount paid by the 23 largest hotels in Philadelphia being less than that being paid by the Waldorf Astoria in New York or than the five largest hotels in Boston. It may be interesting to note that the Waldorf Astoria is credited with using about 205 million gallons of water a year or about 560,000 gallons a day. Among other large users are the brewers. One of these pays the city of Philadelphia nearly \$6,000 a year, while two in New York pay about \$20,000 and \$25,000 a year respectively, the latter being charged with using 187 million gallons a year. Another large user in New York is the American Sugar Refining Co., which paid \$115,000 for 860 million gallons used in one year.

An inspection of these large quantities—and there are scores of such figures given for each of the largest cities—appears to demonstrate the justice of the contention by water works men that the per capita consumption obtained by dividing total consumption by the number of population or number of consumers, gives very little information of value concerning the consumption, since such a large part of it is used by large commercial establishments.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest Under Consideration by City Councils and Department Heads—Streets
Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance.

ROADS AND PAVEMENTS

Municipal Work for Last Year.

Toledo, O.—The city spent \$50,000 more for street and sewer improvements during 1912 than it did in 1911, according to report of the city engineer's department. In 1912 three and one-third miles of repaving was done at a cost of about \$110,000 and nine miles of paving laid during the year cost \$50,000, making an expenditure of about \$460,000 for street and sewer improvement during the year. About fifty streets were paved or repaved, among them East Main street, Warren, Champlain, Auburn, Avenue, Lafayette and part of Erie.

Concrete Sidewalks Feature of Street Improvements.

Logan City, Utah.—Logan City is just winding up a \$40,000 job of concrete sidewalks and preparations are now being made to construct about eight blocks of street paving in the spring. The city has made several miles of extensions and is now preparing plans for a reservoir and settling basin.

Model Boulevard Is Opened at River Bank.

Sacramento, Calif.—Sacramento Avenue Boulevard, one of the best constructed thoroughfares adjacent to the city, has been opened for traffic at Riverbank, across the river in Yolo County. The boulevard is built of solid concrete, six inches thick, reinforced with a steel mesh. It is said to be the only highway of this kind of construction in existence.

Builds 382 Miles of Roads in Year.

Lansing, Mich.—State Highway Commissioner Townsend Ely has sent his biennial report to Governor Osborn. The department built 382 miles last year, which is the most ever built in a year. Since its creation, the department has built 1,230 miles of good roads. The commissioner decries the small appropriation allowed the department (\$10,000) and says it is impossible to give the county commissioners the proper instruction. Already application has been made for 865 miles next year and the department has available for rewards only \$225,000. This amount will not cover the roads already under construction.

Street Was Expensive.

Richmond, Ind.—North Sixth street, which was improved with creosoted wood blocks under private contract, has been finished. It is one of the most expensive improved streets in the city, costing approximately \$6,000 for the distance north of the railroad to Washington avenue. The city paid \$1,500 of this sum and the M. Rumely company, which let the work under private contract, paid the remainder. The work cost \$2.75 a yard. Brick was not a success as a pavement for this street, as the heavy traction engines cut through the bricks in short order. It is thought that the wooden blocks will wear better.

Contemplated Street Improvements in New York.

New York, N. Y.—Borough President McAneny has in view the widening during the present year of all the 100-foot cross streets and of a large part of Broadway. Work of this kind is already under way in various parts of Manhattan. Encroachments over the building line are to be removed on Sixth, Third and Fourth avenues. The work of repaving by modern and approved methods will be carried on vigorously. The pavements recently laid on many streets are satisfactory and promise to serve their purpose, with prompt repairing when it is necessary, for many years. One of the plans of improvement to be carried out in 1913 is the extension of Seventh avenue southward to a junction with Varick street. A plaza approach to the Queensborough Bridge will be constructed between Second and Third avenues and Fifty-ninth and Sixtieth streets. Mr. McAneny also announces that, through the Park De-

partment, plans prepared by Frederick Law Olmsted, Arnold Brunner and Landscape Architect Day for the extension of Riverside Drive northward from 157th street to Spuyten Duyvil Creek will be carried out, and improvements made in Bryant Park and the Fifth avenue plaza. Work will be under way on the new Law Courts in the spring, and the new arrangement of streets in and near the Civic Centre, of which this building will be the centre, will include a wide thoroughfare through the heart of Chinatown. The slums of this neighborhood are doomed. Mr. McAneny is hopeful about the new Federal court building in the Civic Centre, and new post office. The year, too, will see the beginning of work on every branch of the new subway system which is to improve greatly the means of access to the centre of the greater city from all points.

Modern Improvements in Historic Spot.

Pittsburgh, Pa.—A view is given of construction work that is destined to be the downtown opening of Grant boulevard as viewed from a point west of Smithfield street. Eventually this actual section of the boulevard system will be one of the most important links of traffic in Greater Pittsburgh. It is Oliver avenue at its new grade through the Hump. The widened square shown in the illustration extends from Smithfield street to Grant street and was formerly known, for a number of years, as Virgin alley, the same having a historical association extending back to the early days when all there was of Pittsburgh was the French Fort Duquesne at "The Point." A few years ago the name was changed to Oliver avenue and a part of the alley was widened—two squares, from Smithfield street to Liberty avenue. Now the remaining square of the old alley is widened in connection with the removal of the Hump and the breaking through of a new exit for Grant boulevard, and thereby becomes the city end of the boulevard which extends to the East End. It is designed principally to take care of the great number of automobiles which run between the business section and the residential section in the East End.



Courtesy Pittsburgh "Dispatch."
NEW CITY END OF GRANT BOULEVARD.

Minnesota Highway Commission Facing Problem.

Minneapolis, Minn.—After a taste of permanent roads under state supervision Minnesota counties are now clamoring for more. One of the biggest problems facing the state highway commission is designating what roads shall be permanently improved. It was originally intended that the system designated as state roads should include only a network of highways connecting the county seats and chief towns. Now about ten per cent. of all the roads in the state are "designated" as state roads, and in some counties a third of the roads are included. Douglas county has forty-eight roads aggregating 391 miles, or 38 per cent. of the total road mileage of the county, while Leseuer county has 276 miles of state roads awaiting permanent improvements, including forty-six different roads and 35 per cent. of the total mileage of the county.

Convict Built Road Is Good.

Koenig, Colo.—That the convict-built road of which more than five miles has been completed, is one of the best jobs he has ever seen, was the opinion expressed when it was inspected by State Highway Commissioner C. P. Allen and a party of well-known Greeley business men.

Draft Good Roads Bill.

Springfield, Ill.—A special committee of the Forty-seventh General Assembly, which has spent several months investigating highway improvement, has practically completed its work and a bill for presentation to the new Legislature is now being drafted. The committee, under the chairmanship of Representative Homer J. Tice, of Greenview, has compiled a number of recommendations which will form the basis of the bill to be introduced. They are as follows: Employment of convicts upon highways; the creation of a state highway commission; the enactment of a law providing for state aid for the construction of highways, and a uniform system of construction; abolishment of the present system of township commissioners; the payment of all revenue derived from automobile licenses to the highway commission, and a uniform system of taxing the various road districts of the state.

Spokane Plans New Parks.

Spokane, Wash.—A bird's-eye view of Spokane and surrounding country with arrows marking prospective park sites is shown in the illustration. The hills to the west of the city will be streaked with parkways. The boulevard system to be laid out calls for an upper and a lower route. One will follow the crest of the palisades and the other will wind through the valleys, making a real river drive. From the upper road one will have a panoramic view of the city and surrounding country and the lower drive will pass through shady groves flanked with grass and flower beds. Both systems will take in the Latah and Spokane River canyons from north of Fort George Wright to Garden Springs.

Complete Lakeside Park Bridge.

The Lakeside park bridge shown in the illustration is over the waterway connecting the two lagoons of the park on Lake avenue recently completed, is one of the most artistic concrete bridges in that part of the state. Its beauty consists chiefly in its simplicity of design. The bridge has a span of 20 feet. It is 60 feet wide, or the full width of the street, and the floor of the structure is formed of slabs 200 inches thick. The length of the bridge over

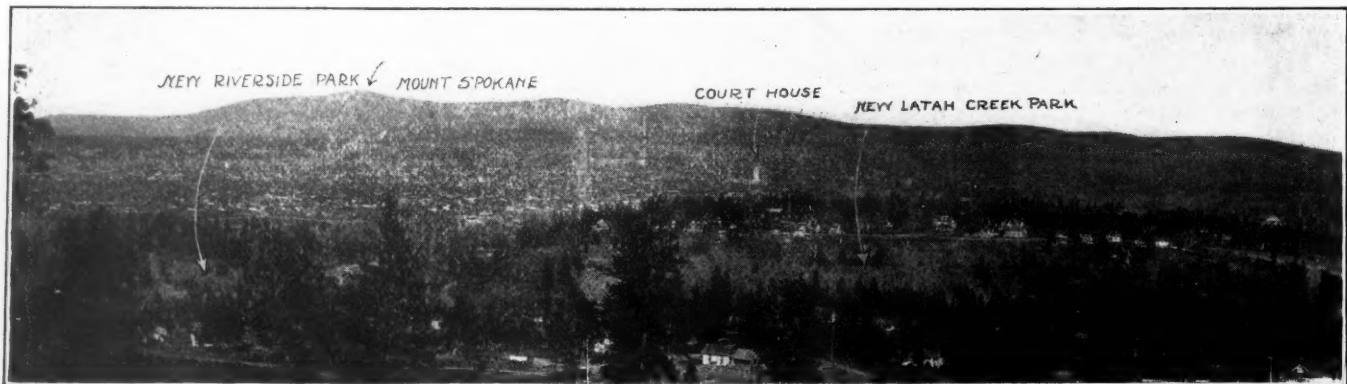


Courtesy Fort Wayne "Daily News."
BRIDGE AT LAKE SIDE PARK, FORT WAYNE, IND.

all is 50 feet, including the wing walls. It is built to last for ages and will easily support a heavy interurban car. Exactly 12,882 pounds of steel were used in the construction of the bridge and 426.28 cubic yards of concrete; 959 yards of dirt were excavated to make place for the structure. The total cost of the bridge was approximately \$4,000.

City Paves Expensive Plot.

New York, N. Y.—The work of paving about 400 square feet between the Queensboro Bridge Plaza in Long Island City and Skillman place, adjacent to Jackson avenue, has commenced. The space will be made a part of the plaza. These 400 square feet represent some of the most expensive real estate owned by the city, for, all told, they have cost the city over \$30,000. The actual sum recently paid to the owners was \$25,000, but other costs have amounted to more than \$5,000. The plot could have been purchased by the city for \$1,500 at the time the other land in Long Island City was taken for the bridge plaza. The owner, a woman living in New Jersey, pleaded with the city officials to take the property at \$1,500, as she said she had no use for it and did not know what to do with it. She said she believed it would only be good to pay taxes on. But several shrewd real estate operators paid the owner a little more for the property that she had offered it to the city for, and then proceeded to erect a one-story frame building on it. The building was then plastered over with big signs, and it became such an eyesore that city officials decreed that it must go. When they came to buy, however, they found the new owners demanded nearly \$30,000. A compromise at \$25,200 was effected, and the building was razed.



Courtesy Spokane "Daily Chronicle."
PANORAMIC VIEW OF PROSPECTIVE PARK AND BOULEVARD SITES SURROUNDING SPOKANE.

Paves and Macadamizes All Streets.

Junction City, Ore.—Many street improvements were made in Junction City for 1912. The paving, which cost \$50,000 and consisting of 12½ blocks, was laid in the principal business section of the city. At the time of the completion of the paving Junction City has more paving than any other town its size in the state. The paving is gravel bitulithic and is 6 inches in thickness. Owing to the fact that crushed rock was not obtainable, and since gravel can be obtained in unlimited quantities, the gravel bitulithic paving was selected as the best for this city under the existing conditions. The men who were back of the paving and who are mainly responsible for the completion of the same are none other than the present council, which consists of Mayor J. E. Murphy and Councilmen Jesse Severns, A. K. Mickey, M. P. Corbin, L. E. Cook, Chris. Strome and J. A. Boone. It was this group of men that boosted the paving proposition and made possible its completion. The street improvements made in addition to the paving on which the city spent \$17,000, was distributed over the different streets throughout the city. Every street was graded up and graveled with two layers, the first layer being of gravel from ¾ inches to 3 inches, and the second layer being of ¾-inch gravel. Every load of gravel placed upon the streets was screened. After the gravel had been graded it was rolled with the city's steam roller, thus making the streets nearly water proof. Junction City can now boast of as fine streets as can be found in any town its size or even larger. Before this street improvement work was commenced it was not an uncommon thing to see a wagon stuck in the mud, but now there is not a single street in the city that is not in first-class condition.

Would Enlarge Municipal Asphalt Plant.

Spokane, Wash.—The municipal asphalt plant, erected two years ago at a cost of \$20,000, having paid for itself in two years, according to the annual report of the paving foreman, Commissioner Coates proposes to recommend to the city council the addition of another unit of the same size, involving the expenditure of another \$20,000. There were four asphalt plants, privately owned, in the city two years ago, the municipal plant having put three of them out of business since then through selling paving to property owners at cost. The only private plant in the city is now operated by the Spokane Bitu-Mass Company. "Since we are doing practically all the asphalt work in the city now, it becomes necessary to enlarge the plant," said Commissioner Coates. "I intend to ask the city council for the appropriation early this month, as soon as we know just what the surplus is in the department of public works out of the 1912 appropriations. If the council will let me, I intend to build the new unit out of that surplus."

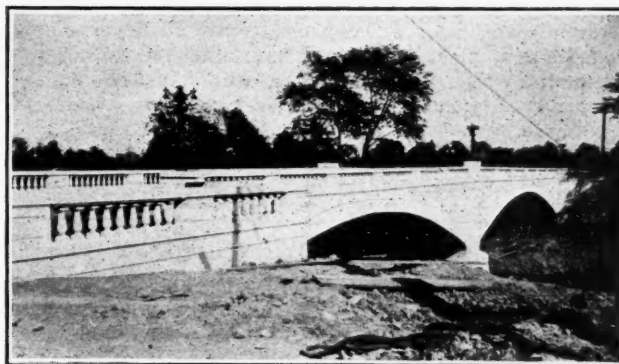
Rebuild 68 Miles of County Roads.

York, Pa.—Sixty-eight and one-half miles of roads, costing approximately \$14,625, have been 2rebuilt in York county by E. S. Frey, assistant engineer of the state highway department, in charge of the Sixth district, including

York, Adams and Lancaster counties, since the state took possession of the 8,000 miles of main highways in Pennsylvania. Thirty-seven miles of roadbed, costing \$7,500, have been repaired in Adams county and 112½ miles at a cost of \$12,500 in Lancaster county. The work of the maintenance of state roads which was started about a year ago has progressed rapidly in this district and in all 218 miles of roadbed, costing \$34,625, have been repaired. The maintenance work on the highways includes the rebuilding of the roadbed, proper drainage and putting in culverts and grading the roadbed wherever necessary. Much work has been done during the past spring and summer, but has now been stopped until next spring, when work will again be resumed. A large force of workmen were engaged on the various jobs throughout the past season. The 10 miles of road on route No. 126, from Gettysburg to New Oxford, is being done under contract by J. H. Dobbling, of York.

Concrete Bridge Spans Wabash.

Decatur, Ind.—The picture shows the new concrete bridge lately constructed over the Wabash River. It crosses the Wabash at Decatur, and is said to be one of the most



Courtesy Fort Wayne "Daily News."

ARTISTIC CONCRETE BRIDGE, DECATUR, IND.

artistic, as well as one of the best built, concrete bridges in northern Indiana. The bridge was recently accepted by the Adams county commissioners.

Improvements in Puyallup.

Puyallup, Wash.—More than \$40,000 was spent in 1912 in paving two of the city's principal streets. Meridian street, from the end of the former paving, was hard surfaced south to the foot of South Hill, making it the longest main street in the valley. Stewart street, from Kelly street, was paved west to the city limits. The county will in the course of a year meet this stretch of road with hard surface material, establishing a continuous thoroughfare between Tacoma and Puyallup. The city went to considerable expense in extending its water system and establishing a drainage system in Clark's creek and Meeker ditch. The city also constructed many yards of new cement walks in various sections of Puyallup.



Courtesy Spokane "Daily Chronicle."

TWO BOULEVARDS WILL BE LAID OUT, ONE FOLLOWING THE CREST OF THE HILL AND THE OTHER THE VALLEY.

SEWERAGE AND SANITATION

Meningitis Town Plague.

Gale, Ill.—The town of Gale is suffering from an epidemic of spinal meningitis. Four in one family died in one night. Three other members of the family are ill.

Vaccination Campaign on at Owensboro.

Owensboro, Ky.—Mayor Lambert, after issuing a proclamation, asserts that every person in the city of Owensboro who has been a resident of the city for 30 days, and who has not been successfully vaccinated, must undergo the operation or suffer the penalty of breaking the law. He is determined in his course and will instruct his subordinates to see that the proclamation is carried out.

People Must Carry Health Certificates.

Memphis, Tenn.—Spinal meningitis has become so prevalent in the country about Memphis that local police authorities have notified the railroads not to bring people into the city from affected districts unless they are armed with health certificates. Arrivals will be examined. Sixty-one cases of the disease have developed recently in Dyer county, Tenn., and of this number 35 have died, according to a statement by Dr. A. L. Albright, who has been engaged by Dyer county authorities to direct efforts to stamp out the disease.

WATER SUPPLY

Douglas Troubled Over Water Loss.

Douglas, Ariz.—Superintendent S. P. Thompson, of the city water department, says half the water pumped at the plant is wasted. During October 25,233,750 gallons were pumped and 10,232,385 gallons were paid for. Thompson has been able to trace only 4,677,215 gallons of the loss. That amount went into the sewer flush tanks, over and above the 11,760 gallons they were supposed to lose.

Water Bureau Receives \$408,000.

Syracuse, N. Y.—The receipts of the bureau of water for 1912 exceed all records since the municipal water system was installed. The total amount probably will be over \$408,000. According to figures announced by Superintendent George A. Glynn, there has been received over the cashier's counter at the water office \$387,489.59, as against \$357,963.46 last year, a gain of nearly \$30,000. This does not include the frontage taxes, interest and other receipts. If these are the same as 1911, the total receipts of the bureau will be \$408,000. It is believed that when everything is counted the revenue will exceed this amount. During the year 37 fewer meters were installed than in 1911, the number being 1,148. While the number of new meters placed is less, the capacity of the meters is in excess of those sold in 1911. "The increase in the capacity of the meters," said Superintendent Glynn, "is due to a demand from industries for city water. There is a notable increase in this direction, and I believe it indicates a healthy growth of the city."

State Board Investigates Cause of Bad Taste.

Anderson, Ind.—At the request of the board of health of Anderson and with the assistance of Dr. J. A. Long, secretary of the local health board, an investigation is in progress to find the cause of the chemical taste in water from the municipal water plant which derives its supply from White river. Following a recent analysis of water from White river, Dr. S. C. Norris, chemist and bacteriologist at the local water plant, reported that he found phenol compounds in the river water, that such compounds imparted the peculiar taste to the water before and after it is filtered, and that the phenol compounds were due to drainage from an artificial gas plant at Muncie. Dr. Norris's report to the board of works at Anderson was then certified to the city board of health, and it decided to take the matter to the State Board of Health. Accord-

ingly, H. E. Barnard, chief chemist, and J. H. Cravens, water chemist of the Indiana Board of Health, with Secretary Long, of the Anderson board, began an investigation between Anderson and Muncie. They will take samples of water from White river at several points between Anderson and Muncie and also at the drainage outlet of the Muncie gas plant. The investigation may also continue east of Muncie. Water from the mains in this city after passing through a filtration system will also be analyzed.

Meters Would Stop Waste.

Millville, N. J.—The installation of water meters will be compulsory in Millville unless the enormous waste is stopped.

City's Water Supply Cut Off by Cold.

Tulsa, Okla.—With the freezing solid of the Arkansas River Tulsa's water supply was cut off and the municipal electric light and power plant was forced to close down after all the available artificial ice had been melted to supply the boilers with water. The Arkansas River is the city's only water supply. It is frozen over for the first time in twenty years.

London's Water Supply.

London, England.—The eighth annual report of the Metropolitan Water Board states that the total amount of water supplied by that body during the year ended March 31, 1911, was 82,170,000,000 gallons, representing a weight of 366,800,000 tons and a daily average of 225,000,000 gallons. The total volume of water abstracted from the Thames was 49,962,000,000 gallons, the remainder being obtained from the Lea and from gravel beds, natural springs and wells. The supply from the last named source amounted to 14,484,000,000 gallons. The month in which the most water was supplied was June, the difference between the daily average of that month and that for January being 35,000,000 gallons, or five gallons per head of the estimated population of the board's area, which is 7,099,871. The average daily supply per head throughout the year was 31.57 gallons, a decrease from 31.98 gallons in 1909-10.

Marblehead's Drinking Water Becomes Salty.

Marblehead, Mass.—The Marblehead water pumped from the municipal supply at Legg's Hill, Salem, now possesses a distinctive flavor of salt, owing to the fact that a suction pipe is being sunk in well No. 1 at the plant in order to take care of the new auxiliary supply, which is soon to be obtained from Thompson's meadow. The water now being pumped through the pipes of the town is so salty that it is impossible for many people to drink it, and as a result a rush is being made to the several pumps located about town and old wells are now being utilized to a great extent. The water at the present time is worse than it has ever been since the plant was established, and if the sinking of the suction pipe is not soon completed harmful results may attend the continued drinking of the salty water. The salt in the water is caused by the fact that well No. 1 is below the sea level and consequently at high tide the water from Salem Harbor oozes into the well. The water is now practically at the lowest possible level to permit the sinking of the suction pipe, and as a result the salt water rushes in while the fresh water from well No. 2 is kept out.

Broken Main Floods Two Streets.

Scranton, Pa.—With an explosion like the bursting of a cannon the bursting of a 16-inch water main at Madison avenue and Gibson street did damage to Madison avenue and Gibson street, which, it is said, will cost the Scranton Gas & Water Company in the neighborhood of \$7,000 to repair. While no definite reason for the break in the main has been given by the company, officials believe that it may have been caused by a slight mine settling. It is said that there have been several slight settlings in the neighborhood of Hower & Senler's lumber yard, a few

blocks away. The water worked its way underground for several feet to the sidewalk and tore up part of the sidewalk and loosened a tree from its roots. The brick pavement surrounding the main was blown up, and a hole 15 feet in length was ripped by the water. Patrolmen were called and guarded the spot all day and night to see that no one fell into the hole. After being freed from the main the water rushed down Gibson street in torrents and tore the stones from the cobblestone gutter and also tore the curbstones and carried them to the corner of Adams avenue and Gibson street, where they were thrown into a pile. The sidewalks around the broken main were worked from their places and the curbstones were carried and rushed in the turbulent stream to the next block. The 700 block of Gibson street is not paved, and the roadway was cut by the water as it poured toward Jefferson and Adams avenues into a ditch several feet deep. The 600 block of Gibson street is paved with asphalt, but cobblestones, curbstones and debris filled the roadway and made vehicular traffic impossible. Workmen for the water company were rushed to the scene and for a time were in doubt as to which one of the three mains had burst. After a consultation, it was decided to turn off the 16-inch main at the corner of Ash street and Madison avenue. This was the main that had burst. General Manager E. M. Stack and Engineer Merkle were on the scene shortly after the burst to direct the workmen.

Waco Artesian Water Analyzed.

Waco, Tex.—In a letter received by Dr. G. B. Foscoe from city chemist Nicholas Hamner of Dallas the latter says the water now flowing from the artesian well on Bells Hill is the best, for general purposes, that has ever been submitted to him for analysis. Mr. Hamner was sent a sample of the water some time ago, with the request that he would analyze it thoroughly.

South Jersey to Get New Water.

Trenton, N. J.—At a recent conference with Governor Wilson, the attorney general and the state water supply commission, it was decided to proceed with the arrangements for the purchase of the Wharton tract for the establishment of a water supply for South Jersey municipalities. Bonds amounting to \$1,000,000 will be issued, and they will be a lien on the land, the interest to be paid from the income of the property.

STREET LIGHTING AND POWER

Experts Figure Profit in Lighting Plant.

Camden, N. J.—According to an estimate submitted to the Camden Council by Runyon Carey, expert engineers, Camden can operate a municipal electric lighting plant for street and commercial service and make a profit of \$54,188.34 a year. In their communication the engineers, who made a contract with the city several months ago to prepare plans, give \$538,928 as the cost of building and equipping a plant. The annual expenses are placed at \$117,046.24, the principal item being maintenance, which is fixed at \$64,255.50. The interest on the bonds would be \$29,641.04, and depreciation is figured at \$23,159.70 a year. The estimated income of the proposed plant is \$171,244.58, made up of \$83,275 now paid by the city to the Public Service for street lighting, and \$87,968.70, which the experts figure will be the income from commercial service.

Light Plant Pays.

Clay Center, Kan.—For five years Clay Center has owned its city water works system. After a municipal controversy Clay Center installed a municipal electric lighting system, not only to light the streets but also to sell current for power and lighting purposes. With the installation of the plant, a utilities commission, composed of three of the business men of Clay Center, was appointed. It has had complete charge of both the water works and electric light plant ever since. Without making special investigation, Clay Center people knew that the utilities were doing well in a

financial way. Improvements were often made around the plant, extensions were made to the water works system, two new pumps at a cost of about \$6,000 were bought and installed and about a year ago \$5,000 of the electric light bonds were paid off. The utilities commission now proposes to install 43 electric light posts, each post with five bright lights at its top, around the business portion of Clay Center. In a town the size of Clay Center, the business section is not large, so the 43 electroliers will light the business section well. In the residence part of town, lights will be placed at every street intersection.

Light Plant Fire Leaves All Paris in Darkness.

Paris, France.—A great fire occurred at the St. Denis electric light and power station January 4, plunging Paris into semi-darkness, and causing serious inconvenience to thousands of Parisians. The outbreak occurred shortly before 6 a. m., and soon took alarming proportions, despite the efforts of the army of firemen who hurried to the scene on motor engines. At 6:15 the underground railway came to an abrupt standstill, while the lights in the trains and also in the tunnels and stations began to grow dimmer every second. At this time every train was packed. Under the circumstances, the passengers were requested to leave the trains. Where they were drawn up at stations this was an easy matter, but as in many instances trains had pulled up in the tunnel, it was necessary for the passengers to jump out on to the side track and walk many hundred yards along the line. Women shrieked with terror and fainted, remembering possibly the terrible "tube" fire of 1902, when nearly 100 perished. Meantime the grand boulevards were plunged into semi-darkness. Curious effects were noticed. For instance, while the Avenue de l'Opera, which depends for its supply on an electric station not affected by the fire, was brilliantly lighted, the Place de l'Opera was almost in darkness.

Steam Plant Saves City from Darkness.

Syracuse, N. Y.—Syracuse escaped a night of total darkness on January 3, owing to the ability of the Syracuse Lighting Company to cope with the situation. When the oil switch in the Niagara Falls power plant blew out, every electric light in Syracuse was put out of commission. Office buildings became dark and arc lights throughout the city went out. The lighting company keeps its emergency plant continually under steam, so that when it was reported that power would be off for several hours all the boilers in the plant were placed in operation. In order to restore lights to the business section of the city several arc light circuits in outlying parts of Syracuse were turned off. This power was diverted and was used in keeping stores, offices, shops and other places of business illuminated. In spite of the prompt work of the company, lights were off in some parts of the city for nearly an hour. Officials of the lighting company said that the emergency plant was capable of carrying a load sufficient to light the city. The power was maintained all night. Had the emergency plant been unavailable, Syracuse would have been plunged in darkness for many hours, it being impossible to obtain power from power houses outside of Syracuse, as the lighting company has no way of transforming it. According to reports received in Syracuse, the oil switch, one of the largest in the power plant, blew out. Every bit of machinery in the plant was crippled, and the force of the explosion blew the roof from the west end of the building.

One Furnace Will Heat Entire City.

Mexico, Mo.—The town of Mexico, with a population of 7,000, has a system of heating which is found generally only in big cities—a system of heating from steam mains laid under the streets. The steam is one of the by-products of the Mexico power plant, which supplies gas, water and electric light, and its use has made it unnecessary for the residents of Mexico to worry about the fuel problem. Practically all the business buildings on the town square are heated by this system. And in addition to being more convenient than the old system of furnaces, it is a good deal cheaper. The power company started the heating system as an experiment; now it is unable to lay mains fast

enough to satisfy the people of Mexico. The company now has between one and a half and two miles of steam mains and is building more as fast as possible. It is an expensive process, for the steam pipes are laid on a concrete base and must be protected by a layer of asbestos. But the cost of operation, once the mains are laid, is very slight, and the charge to the consumer is far less than that entailed by individual furnaces with coal or gas. The steam is transmitted into ordinary radiators. The town commercial club is also busy planning a new system of street lighting, which will provide a light on every corner, and in a little while Mexico is going to be the best-lighted and best-heated and altogether most attractive municipality in the state.

Installs Over \$100,000 Worth of Electric Signs.

Galveston, Tex.—About one year ago the campaign for making Galveston the best lighted city in the world was begun, and the city of Galveston now has more electric display advertising signs to the mile, street or in any other manner figured, than any city of similar size. During the year between 85 and 100 electrical displays have been installed in various sections of the city. Of this number the Brush Electric Company, the people who inaugurated the move of making the Oleander city the best lighted city in the country, have installed more than 80, the Galveston Electric Company putting in the remainder. The signs, which represent an investment of more than a hundred thousand dollars, and which emit light amounting to the flames of more than one million ordinary candles, are of sundry designs and mechanism, some of them being among the very finest ever constructed, as well as the largest. There are more than 27,000 electric lights in these signs. Among the many signs installed during the past year are seven which contain 800 lamps or more. The slogan sign, located on the seawall on an indestructible concrete base at the foot of 25th street, represents one of the most beautiful designs ever put into execution, and contains 5,000 brilliant tungsten lamps. The Gas and Electric building, the home of the Brush Electric Company, which has been so instrumental in making the city a blaze of electric lights, is outlined in 3,000 lamps, which make the entire front one of the most brilliantly lighted places in the world.

Bay City Begins the New Year in Darkness.

Bay City, Mich.—Bay City started the first night of the new year in darkness. Shortly after six o'clock at night a large piston on the turbine broke and pieces flew into the other machinery, causing about \$1,000 damage. It required more than two days to make repairs. Besides street lights, the plant furnishes current for the lighting of several hundred residences and stores.

FIRE AND POLICE

Police Order Slot Machines Out.

Fulton, N. Y.—Chief of Police W. H. Ross has again placed all slot machines in Fulton under the ban, and to all appearances the "lid" is down tight. Not a machine is to be found in a cigar store or restaurant. For some time past various types of slot machines have been in operation, including the old-time penny poker hand devices, and some of the later types of nickel machines. They were used mostly in cigar stores and pool rooms. The action of Chief Ross, it is said, was based upon the fact that the younger element in the city were getting into the habit of "playing" the machines, and in some instances would gamble with each other for the checks which were won.

Big Fire Waste Shown in Report.

Louisville, Ky.—Losses by fire in the city of Louisville during the calendar year 1912 were in every instance larger than in 1911, according to the report made by Secretary Thomas C. Timberlake at the annual meeting of Louisville Salvage Corps. Secretary Timberlake's report shows that total losses on buildings and contents for the year ending December 31, 1912, amounted to \$876,786.92, as compared with a loss of \$758,799.81 for the calendar

year 1911. The loss on contents was \$641,720.70 for 1912, as compared with \$586,019.66 in 1911. The loss on buildings thus far reported was \$235,066.22, as compared with \$172,779.75. The total insurance in force on buildings and contents during the year 1912 was \$5,281,922.78. Of this amount, \$2,885,272.66 was on buildings and \$2,396,650.12 on contents. During the year the Salvage Corps answered 869 first alarms, 21 second alarms, 13 third alarms, 84 still alarms. It spread 1,267 covers and saw 437.43 hours of actual service.

Lay Cornerstone of New Darby Firehouse.

Darby, Pa.—Before a large representation of the volunteer firemen of Delaware county and a host of friends, the cornerstone for the new \$8,400 engine house for the 137-year-old Darby Fire Company, No. 1, was laid one afternoon of last week. The ceremonies were brief but impressive. The structure, which is being built of concrete blocks, is the first of its kind to be erected in Delaware county. It is being built by the Hall Concrete Products Company, of Grassland, at a cost of \$8,400.

Policewomen on Duty.

St. Paul, Minn.—Mayor H. P. Keller has announced the appointment of two women as regular members of the St. Paul police department. They are Mrs. Margaret Kelly and Mrs. William Moore. The appointments were made in accordance with a recently enacted city ordinance. The two women assumed their duties by watching the old year out at the dance halls, where the authorities claim young girls are surrounded by bad influences. They will report what they saw to the Mayor, as they have no authority to make arrests.

Civilian as Police Head.

Chicago, Ill.—Reorganization of the police system was embodied in an ordinance passed by the city council. Under the new plan there will be three head officers of the force, a general superintendent and two deputies. One of these deputies will be an officer, and his duty will be to direct the ferreting out of crime and similar work. The other deputy will be a civilian, and he will have charge of the moral welfare of the city. Policemen have fought the new scheme strenuously. They objected especially to the civilian officer.

As Police, Women Enforce Blue Laws.

Hatfield, Ind.—A "lid" as tight as any imposed by the Connecticut blue laws was clamped down on Hatfield last Sunday. This little village of 500 people could openly buy nothing save a postage stamp of any of the tradesmen. Members of the W. C. T. U. acted as policemen, regular "beats" being laid out so that one of the women passed up and down the busiest section of the town every hour through the day. To circumvent the prying eyes of the self-appointed police, enterprising restaurant men bootlegged chewing gum and small packages of candy.

Special Night Police in Paris.

Paris, France.—The dangers of Paris at night have led to the organization of a special night brigade of police independent, in some respects, of the regular force, but co-operating closely with it. The initiators, deputies, municipal councillors and members of trade organizations have obtained the approval of the government and the prefect of police. The night auxiliary force will have a uniform of its own, and will be armed with revolvers and night sticks. Each man will have a police dog trained to pull down anyone running, and to hold him until called off by the policeman. These dogs, largely bred in Belgium, are lithe, strong animals, and are often a cross between the wolf and the European sheep dog. It is a good deal of a risk for a night wayfarer in a Paris street to run for a distant cab. He is likely to be startled by one of these swift animals darting out from a dark corner and leaping for him, unless arrested by the sharp call of the policeman. The police dog, a good many of which are now attached to the regular service, has become therefore in itself a new danger in the night life of the capital.

MOTOR VEHICLES

New Auto Patrol Tested.

Dayton, O.—The new automobile police patrol was tested out for the first time by an employee of the Speedwell Company. The new car is complete and will now be turned over to the safety department. Safety Director Dodds and members of the patrol and ambulance crews inspected the car at the patrol house.

Motor-Driven Apparatus Installed.

San Francisco, Cal.—A new chemical engine company, No. 11, with Captain E. Doherty in command, has been installed by Chief Murphy in the fire department house on Folsom street, between 21st and 22d. This company has motor-driven apparatus. A motor-driven wagon was also placed in Engine Company No. 10's house on 17th street, near Harrison.

Mayor Recommends Motor-Driven Apparatus.

Bayonne, N. J.—In his message to the city council Mayor Matthew T. Cronin, of Bayonne, said: "I would recommend the change from horse-drawn to motor-driven apparatus. Experience in other cities proves motors to be more serviceable and economical than horses. This change should be made as rapidly as financial conditions may warrant.

Tampa Fire Chief Buys Flying Auto Squadron.

Tampa, Fla.—A new "flying squadron" holds the center of the stage in fire-fighting in Tampa. Chief W. M. Matthews of the Tampa fire department has organized his "flying squadron" around a new six-cylinder Hudson, which he recently purchased. The car is equipped with chemical extinguishers and other apparatus for fighting incipient fires. The Tampa fire squadron precedes the regular fire department to each fire and, carrying five men, it is often possible to extinguish fires when they are small.

Government Buys Four Alco Trucks.

Washington, D. C.—Pursuing the policy of adopting motor trucks in its service, the United States government has purchased four Alco trucks, two of which will be employed in army activities at the West Point post, and the others in salvage work in the fire department at Manila. One of the machines for West Point is of three and one-half tons capacity. It is fitted with a stake body and is used to haul hay, straw, oats and so on for the horses stabled at the post. It also transfers materials used in the maintenance of the different buildings. The other truck, of two tons rating, is equipped with a self-dumping body and hauls coal from the railroad to the different buildings at the post. Both of these trucks have a particularly hard test, as there is a 12 per cent. grade, which means a continuous climb from either direction in approaching the army post. According to the government requirements, the trucks have to ascend the hill with capacity load at a speed of six miles per hour. It is interesting to note

in this connection that the trucks will be standard throughout, a departure from the custom sometimes followed by the war department to make its own specifications and have the manufacturers build their trucks specially. The two vehicles for Manila have a course over much primitive roadway which makes traveling usually difficult.

New Cars for Fire Chiefs.

Providence, R. I.—The three new automobiles for the use of the district chiefs of the Providence fire department have been delivered to the department. The cars are of the runabout type, four cylinders, of 22.5 horse-power, and are said to be capable of making 55 miles an hour. They are equipped with "non-skid" tires, and are painted a maroon color with black trimmings. They will be used by the three district chiefs, one at the station of Ladder 8 by District Chief Smith, one at Station 4 on Mill street, by District Chief Allen, and the third at Station 8 on Harrison street, by District Chief Miller. The cars will go into service at once.

Good Record for Auto Engine.

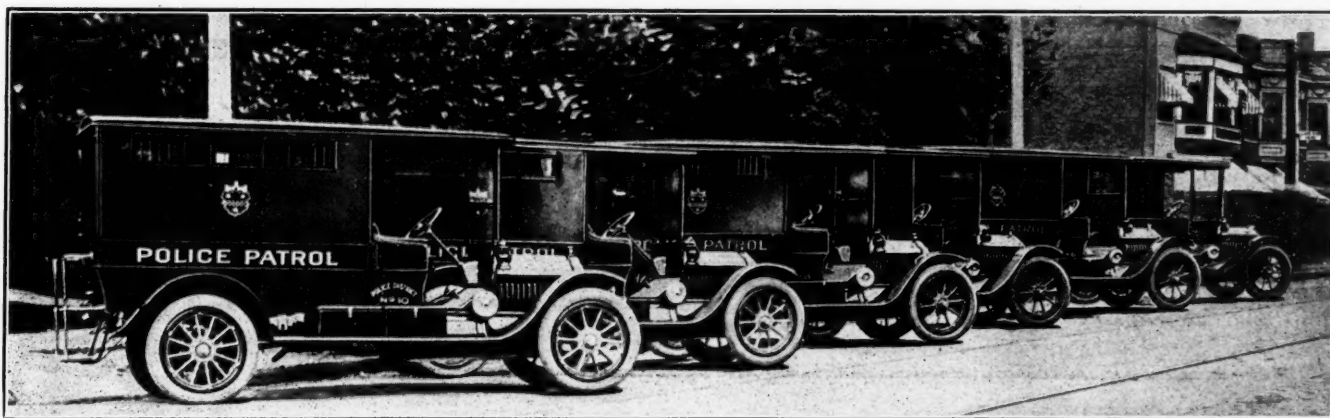
Saginaw, Mich.—The work of the auto engine shares largely in the general efficiency record of fire department for the past year. The auto engine went into service November 8, 1911, and has responded to 253 alarms, not failing once to give prompt account of itself. The Saginaw auto has been ready every minute, which is considered a splendid recommendation for the department. Three times during the year the machine has pumped water through from 1,200 to 1,500 feet of hose in extinguishing fires outside the city limits. This auxiliary feature Chief Wallis considers a very important one.

Auto Patrol Cheaper Than Horse-Drawn Patrol.

Fort Wayne, Ind.—The police department cost Fort Wayne during the year 1912 \$59,694.95 for maintenance, including salaries and all other expenses. The department had money to spare, however, \$1,727.05 reverting to the general fund, because it was not needed for the operation of the police force. The auto patrol showed a considerable saving over four horses, the account including the \$185.93 for wagon repairs, not totaling as much as four horses in the fire department, and covering twice the number of miles. The fire department spent \$102,159.54 during the entire year. The maintenance of the fire alarm system for the year cost \$6,619.14.

Pleased With Auto Test.

South Bend, Ind.—The new auto truck for the South Bend fire department meets all requirements when tested by the officers of the department. From 20 to 25 firemen, including Chief Weeks from Battle Creek, the board of safety from Elkhart, Fire Chief Buysee from Mishawaka, witnessed the test. The truck has a 70-horse-power engine, is equipped with electric lights, electric horn, self-generating engine, and Dayton airless tires, and all the



PART OF A FLEET OF ELEVEN WHITE PATROL WAGONS OWNED BY THE CITY OF PITTSBURGH. SIX OTHER WHITE TRUCKS ARE OWNED BY THE CITY.

latest appliances. The tires are guaranteed for two years, and the engine for life. The truck is 37 feet long from the electric searchlight in front to the end of the ladders and has a wheel base of 37 feet. The speed capacity is 50 miles an hour.

Motorizing Fire Department.

Fort Wayne, Ind.—The question of the motorization of the entire Fort Wayne fire department, eliminating not only all the horses and substituting autos for them, but also casting out the old steam pumps and employing gasoline engines for this character of work, was the subject of a meeting of Members J. C. Hutzell, Marion B. Johnson and W. D. Henderson, of the board of safety, with Price Lane, an engineering expert from the Robinson Manufacturing Company of St. Louis. Mr. Lane, who has made an exhaustive study of the operation of motor cars in fire department work, had prepared a system of charts and tables applied to Fort Wayne and based on the rulings of the National Board of Fire Underwriters. Some interesting figures, so conclusive that the board is contemplating the advisability of seeking a conference with the council with a view to arriving at a means for getting sufficient money to accomplish the entire change in the near future. Mr. Lane had prepared a series of maps showing the location of the present engine houses, with circles thereon indicating the various radii of these engines and how far they can travel and in what time they can arrive at any point in their territory, and how quickly they could get into the congested district, where the greatest fire hazard is; also the number of gallons of water they could deliver. Taking this for comparison, he then shows what the motor engine will do.

New Auto Ambulance Arrives.

Newark, N. J.—Ready for use, the new 50-horse-power ambulance, recently purchased by the board of health, is at the garage of the City Hospital. Unless it is absolutely necessary, Superintendent Talbot will not send the new machine out for a few days until the streets are cleared of snow and mud and good weather conditions prevail. The remaining two machines at the hospital will be used for the current service.

Small Fire Loss During 1912.

Jacksonville, Fla.—According to the figures compiled by Chief T. W. Haney, property in Jacksonville valued at \$113,656 was destroyed by fire during 1912, the estimated loss above the insurance being only \$6,411. This is considered a splendid record, and it is doubtful if any city in the country the size of Jacksonville can show as small a fire loss. There has been added to the department: One 80-foot motor-drawn aerial hook and ladder truck; one motor-drawn high-pressure wagon; one motor-drawn combination wagon; one new hook and ladder for Station 2, Main street; one new high-pressure company, Station 4. All of the apparatus now located at the central station is motor-drawn equipment. The department consists of the following equipment: One chief's automobile; one motor-drawn

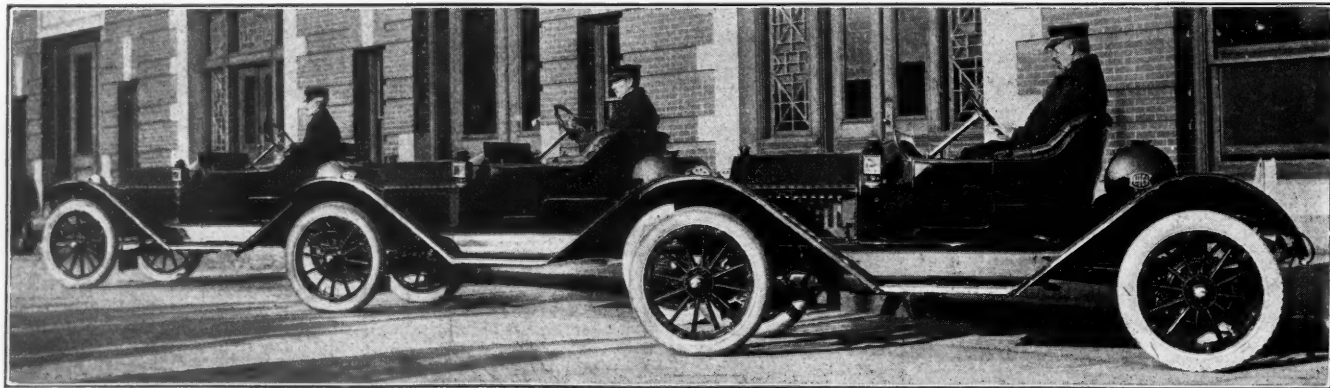
aerial truck; one motor-drawn combination wagon carrying 1,000 feet of 2½-inch hose; one motor-drawn high-pressure wagon carrying 1,000 feet of 3-inch hose; two horse-drawn fire engines; two horse-drawn hook and ladder trucks; one horse-drawn combination wagon carrying 1,000 feet of 3-inch hose; one horse-drawn high-pressure wagon carrying 1,000 feet of 3-inch hose; five horse-drawn hose wagons carrying 1,000 feet of 2½-inch hose and deluge sets; one high-pressure pumping station located at foot of Newnan street, which is considered one of the greatest assets of the department.

Auto Patrol Added to Police Equipment.

Portsmouth, Va.—Portsmouth's new auto patrol, delivered by the builders, A. Wrenn & Son, of Norfolk, has been inspected by members of the police committee, of the council and officials of the police department, who took a ride in the machine, traversing the principal paved streets of the city. The members of the police committee seemed generally pleased with the machine, which will fill a long felt want in the city, no patrol of up-to-date construction and facilities ever having before been possessed by the police department. The new car is modern in every particular, even to its lighting equipment, which is electric; the cage will be illuminated by a single electric globe, set in the ceiling of the car and switched on conveniently from within the cage.

Fire Chief Favors Two Salvage Corps.

Los Angeles, Cal.—That the commercial center of Los Angeles is too large to be afforded adequate protection by one fire patrol, or salvage corps, is the statement of Chief Eley of the Los Angeles fire department, who believes that two bodies—one for the wholesale district and one for the retail section of the city—should be organized and maintained by the board of fire underwriters. Chief Eley supports the contention of the merchants that a salvage corps would be satisfactory only if maintained and operated under the direction of the board of fire underwriters. The merchants declare that if such a body were operated by a committee of business men not connected with the insurance agencies, their policies would be endangered by the removal of goods from a burning building. Certain rules would be enforced and the city would soon become as safe from danger from fire as Indianapolis, where the loss is less than any city in the country. Chief Eley said: "In the eastern cities where the system has been tried and found satisfactory, the fire risk has been reduced and the insurance companies and the merchants have profited by the saving effected and by the lower insurance rates. The same system would be profitable in Los Angeles. The fire patrol, or salvage corps, could be operated successfully only if under the direct control of the board of fire underwriters. There would be too many chances for controversy if such a department were conducted by a committee of business men. In the cities where the system is in operation the men work under the control of the insurance representatives and are paid by the underwriters."



Courtesy Providence Journal.

BUICK MOTOR CARS FOR DISTRICT FIRE CHIEFS OF PROVIDENCE, R. I.

STREET CLEANING AND REFUSE DISPOSAL

Year's Important Events in Street Cleaning.

Washington, D. C.—Important events in the street cleaning department for last year included the completion of the new stable, located between 13th, 14th, E and G streets southeast. In designing the southeast stable, sufficient space was allotted for improved and extensive storerooms and repair shops, in which a number of modern machines have been installed, driven by electric motors. This shop, in addition to doing all repair and rebuilding work, manufactures new equipment, such as carts, wagons, trash boxes, brooms, pan scrapers, etc. During the year a cost-keeping system was developed, with the idea of attaining, through the study of comparative costs, greater efficiency and economy. This system, with other things, keeps a close check on all material used and purchased and keeps the inventory of stock on hand always up to date, and also compares the work of the various foremen, giving an accurate idea of what it costs each man to do his work. The territory to be cleaned has increased considerably, and is cleaned more often, due largely to the fact that the "white wing area" has been extended, the "white wings" cleaning the streets every day as compared with machine cleaning every other day. This area is also washed at frequent intervals. The oiling of suburban streets was undertaken on a rather large scale in the place of sprinkling with water, each street being thoroughly swept without sprinkling before the oil was applied, and remarkably good results obtained. In the future it is the intention of the street cleaning department to use only this method in laying the dust.

RAPID TRANSIT

Car Line Plan Voted in Rome.

Rome, Italy.—The election of 28 members of the Roman municipal council were held recently. Twenty-three supporters of Signor Nathan carried their seats, and the remaining five fell to the Independent Socialists. The Clericals took no part in the election. The question of the carrying of a tram line through the Via Condotti has been settled in the affirmative by 12,187 votes to 1,446. There has been great opposition to the scheme on the part of the residents as well as from artists interested in the preservation of the beauty of the city.

More Cars to Be Made P-A-Y-E.

Schenectady, N. Y.—Because the operation of the prepayment cars in Schenectady has proved so satisfactory and has met with such favorable comment from the citizens in general, the company has decided to alter twenty-five of the "500" type as soon as possible and make them pay-as-you-enter cars also. This work will be started in a short time and it is expected will be completed before spring. The "500" type cars are about the same size as the new prepayment cars and after they are altered will be as comfortable and convenient as the new cars. The A belt line has no other style or type car running on the line now except the pre-payment cars.

Sanitary Car Strap Hangers.

Grand Rapids, Mich.—The new P. A. Y. E. cars on the Lyon street division are equipped with sanitary strap hangers. They are a composition of rubber and celluloid which gives them a white color. Otherwise they are similar to the leather straps. "I don't know any other city that has the sanitary hanger," said Superintendent John C. Madigan. "I saw the straps exhibited at the street railway convention at Chicago. They looked so much better than the old straps that I decided to give them a trial. The sanitary straps are hard and do not absorb perspiration like the leather straps and then they can be washed. We wash our cars every other day and, of course, the straps will be washed at the same time. If they work out in a satisfac-

tory manner we will equip the rest of the cars with them. They cost more than the other straps, nearly four or five times more, but they will last indefinitely."

MISCELLANEOUS

Cold Shackles Salt Lake.

Salt Lake City, Utah.—Zero weather, broken water pipes, flooded streets and blockaded street cars caused great inconvenience Jan. 6th in Salt Lake City. The streams from which the city gets its water were so blocked with ice that the supply is seriously curtailed. The River Jordan was frozen nearly solid. Local thermometers recorded zero, the lowest for seven years.

Tucson Puts Its City Prisoners Chopping Wood.

Tucson, Ariz.—The city of Tucson has ceased to work its prisoners on the streets and put them to work chopping wood for the various municipal offices. It is estimated that the city was saved between \$200 and \$300 on its wood bill last month.

Smoke Inspector Reports on Plans for Prevention.

Louisville, Ky.—Jacob P. Brown, city smoke inspector, has compiled a report showing the number of concerns in the city that have put in devices for the prevention of smoke. The report is addressed to Mayor Shank, the board of safety, Thomas A. Winterrowd, city building inspector, and the Chamber of Commerce. Brown has arranged the power and heat plants of the city in three classes, as follows: Class A, plants that are equipped with stokers; Class B, plants that are equipped with steam jets, and Class C, plants that are not equipped with any device. In the latter classification are many plants that are used for emergency purposes, power or heat ordinarily being taken from public service corporations, and also many of which use smokeless coal. In Class A, Brown has placed 76 concerns and of these he says, "I see no good reason why they should not be handled eleven out of twelve hours without any objectionable smoke, giving one hour for cleaning fires, putting new fires under green boilers and getting up steam on same." Brown places 103 concerns in Class B and 177 concerns in Class C, the latter not including apartment houses and churches, which do not come under the city anti-smoke ordinance. Brown also reports that the concerns, which were prosecuted several months ago, have since taken steps for the prevention of smoke.

Propose Public Park and Playground.

Seneca Falls, N. Y.—For years a public park and playground have been the aim of many Seneca Falls residents. With the letting of the barge canal and harbor contract a movement has been started by public spirited citizens to use the harbor and vicinity for a park. The harbor will be located in a natural valley. It is proposed to build a boulevard around the barge canal harbor, create park land, plant shrubs and flowers and have walks and drives, a pavilion, dance pavilion and band stand. The boulevard, which will be constructed of concrete and macadam, will be 32 feet wide. It will start at the extension of Fall street, extend around past the Seneca Falls Hospital, past the north bank of the ravine to the dam called for in the harbor plans. Here it will cross the harbor on the dam, the top of which will be converted into a bridge, to Seneca street. It will then be necessary to acquire the old Lehigh Valley railroad right of way and use it for a public park from Ovid street east. The boulevard will be lighted at night with lights similar to those now in use in Fall street.

60,000 Trees for Parks.

Sacramento, Cal.—Late in February approximately 60,000 trees of many varieties will be sent to Sacramento destined for culture and propagation in Del Paso park. Nearly three weeks ago H. A. Alspach, city superintendent of parks, sent in a requisition for the trees. They comprise a wide variety and after culture and growth in the nursery in Del Paso park will be planted in parks, playgrounds, and along streets and highways.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

New Assessments—Invalid Assessments.

City of Chicago v. Race et al.—Under section 46, art. 9, Cities and Villages Act 1872, providing for new assessments where the first assessment has been annulled by the city council or board of trustees, or set aside by any court, no distinction is made between proceedings that are invalid because of some mere error or irregularity and those which are invalid because the court had no jurisdiction.—Supreme Court of Illinois, 99 N. E. R., 925.

Assessments—Review Findings.

City of Chicago v. McKinlock, et al.—Where, in the trial of objections to street improvement assessments, it did not appear that the superintendent of assessments, in omitting the property of an elevated railroad extending over the full length of the proposed improvement, acted so negligently and improperly that his acts were fraudulent, a finding which upheld the omission of such property could not be disturbed on review.—Supreme Court of Illinois, 99 N. E. R., 858.

Personal Injuries—Contributory Negligence.

Kurel v. Borough of Shamokin.—In an action against a borough for personal injuries, plaintiff cannot recover where the accident was caused by plaintiff stopping his wagon so near the tracks of a steam railroad on a borough street that it was struck by a train, though there was ample room to stand on the street at a safe distance from the tracks.—Supreme Court of Pennsylvania, 1912, 85 A. R., 83.

Health—Local Boards—Review of Regulation.

Board of Health of Cranford Township in Union County v. Court of Common Pleas in and for Union County et al.—It was not within the legislative intent, in enacting legislation conferring upon the local boards of health the power to prescribe, quarantine regulations, in a district or locality, infected with a contagious disease, to subject the discretion of such boards to the review of the local court for the purpose of substituting the judgment of such tribunal for that of the boards to which the power is specifically committed.—Supreme Court of New Jersey, 85 A. R., 217.

Officers—Action for Salary—Burden of Proof.

Ducharme v. City of Biddeford.—Where, in a patrolman's action against the city of Biddeford for salary, it appeared that the full number of patrolmen were legally in office at the time the Board of Police assumed control and that his appointment was subsequent thereto, the burden was on plaintiff to show death, resignation, or legal removal creating a vacancy to fill which he could have legally been appointed.—Supreme Judicial Court of Maine, 85 A. R., 157.

Ordinances—Repeal.

American Malleables Co. v. Town of Bloomfield.—A mere resolution of the governing body of a municipality will not serve to repeal or modify a duly enacted ordinance. To do so necessitates action of like formality to that required for the enactment of the original ordinance.—Court of Errors and Appeals of New Jersey, 85 A. R., 167.

Ordinance Licensing Bakery.

City of Chicago v. Drogasawacz.—The authorities of the city of Chicago have power to adopt an ordinance requiring bakeries to be licensed, defining a "bakery" as any place used for the purpose of mixing, compounding, or baking, for sale, or for purposes of a restaurant, bakery, or hotel, any bread, biscuits, etc., or any food product of which flour or meal is a principal ingredient, and providing for ventilation, light, and other sanitary requirements in such bakeries, under Cities and Villages Act, authorizing cities to regulate the sale of meats, poultry, etc., and all

other provisions, and to provide for place and manner of selling them, and paragraph 53, giving them power to provide for and regulate the inspection of meats, poultry, etc., and other provisions, the phrase "other provisions" including bakery products, covered by the ordinance, and the power to regulate including the power to license, and also, by paragraph, giving cities power to do all acts and make all regulations which may be necessary or expedient for the promotion of health or the suppression of disease.—Supreme Court of Illinois, 99 N. E. R., 869.

Delegation of Legislative Power.

City of Woodland v. Leech et al.—The Legislature may, as is done by Municipal Corporation Act, as amended in 1901, confer on the board of trustees of municipalities the power to designate in their discretion the city treasurer as the collector of license taxes; the grant of power being general, within Constitution, requiring the Legislature by general laws to provide for the incorporation and classification of municipalities.—District Court of Appeal, California, 127 P. R., 1040.

Patented Pavements—Competition.

Ford v. City of Great Falls.—While Rev. Codes declares that contracts must be let to the lowest responsible bidder under such regulations as the city council may prescribe, a resolution by the city council for the pavement of streets specifically requiring the use of patented pavement, thus eliminating competition in bidding so far as relating to the materials, is not invalid; the bidding being open to all contractors, any one of whom could use those paving materials upon payment of a fixed price to the patentee whose monopoly is secured by law.—Supreme Court of Montana, 127 P. R., 1005.

Authority to Employ Attorneys.

Cheesebrew v. Town of Point Pleasant et al.—A municipal corporation may usually employ as many attorneys in a particular suit or matter as it may deem necessary to protect its interests, unless its charter forbids or the general scheme of its government so provides for a city attorney or other legal officer as to negative authority to employ others.—Supreme Court of Appeals of West Virginia, 76 S. E. R., 424.

Change of Grade—"Owner."

Chiesa & Co. et al v. City of Des Moines.—Requiring a city changing an established grade of a street to the injury of abutting property to pay the damages to the owner, and sections defining "real property" as including lands, tenements, hereditaments, and all rights thereto and interest therein, and the word "property" as including real property, a tenant for life or for years of a city lot is an "owner" to the extent of his interest, and may sue the city for injuries sustained by a change in the established grade of the street in front of the property.—Supreme Court of Iowa, 138 N. W. R., 922.

Pavement—Cost—Debt Limit.

A. A. White Townsite Co. v. City of Moorhead et al.—An amendment to the charter of Moorhead construed, and held to empower and authorize the city to construct a pavement on and retaining wall along a certain street, notwithstanding that the cost of such improvement would make the indebtedness of the city exceed the limit prescribed by the original charter.—Supreme Court of Minnesota, 138 N. W. R., 939.

Change of Grade—Measure of Damages.

Murphy v. City of Meridian.—A measure of damages, adopted by a bill of complaint, that on account of the raising of the street it will be necessary to raise plaintiff's residence, surface her yard, and lay a walk, and various other things, may be one of the evidential facts by which the damages may be established and may be used for such purpose.—Supreme Court of Mississippi, 60 S. R., 49.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals.

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles, where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS.

Road System of France. By M. De Pulligny. Paper before American Road Congress. 1½ pp., Surveyor, December 27. 40 cts.

Road Development as State's Opportunity. By S. A. Perkins. 1½ pp., Pacific Builder, December 21. 15 cts.

Spokane County and Its Road Progress. 1 p., Pacific Builder, December 21. 15 cts.

York County, Ontario, Highway Commissioner's Report. 4 pp., Canadian Engineer, December 26. 15 cts.

Road Work in Hamilton County, Ohio. 2½ pp., Good Roads, December 7. 10 cts.

Road Building in Ohio. Illustrated 5 pp., Good Roads, December 7. 10 cts.

Resurfacing of 102 Miles of Highway in Five Months. Paper before Third American Road Congress. By G. H. Levitt. 1½ pp., Engineering & Contracting, December 16. 10 cts.

Road Building at a Mile per Day Rate. By G. H. Leavitt. Paper before American Road Builders' Association. 1 p., Engineering Record, December 14. 10 cts.

Organization of State Highway Department. Paper before American Road Builders' Association. By W. W. Crosby. 1 p., Engineering & Contracting, December 25. 10 cts. 1 p., Engineering Record, December 14. 10 cts.

County and Township Organization of Highway Work. By A. N. Johnson. Paper before American Road Builders' Association. ¾ p., Engineering Record, December 14. 10 cts. 1½ pp., Engineering & Contracting, December 18. 10 cts.

Organization of Municipal Highway Bureau. Paper before Third American Road Congress. By W. H. Connell. Illustrated, 1½ pp., Engineering & Contracting, December 18. 10 cts.

State Aid in the United States. Progress of. By P. D. Sargent. Illustrated. 7 pp., Southern Good Roads, December. 20 cts.

Law, Permanent Highway and Its Results. By Governor M. E. Hay. 1½ pp., Pacific Builder, December 31. 15 cts.

Problems, Our Road, and Some Solutions. By P. W. Rochester. 2 pp., Pacific Builder, December 21. 15 cts.

Traffic Census of Massachusetts Road in 1909 and 1912. By W. H. Sohler. Paper before American Road Builders' Association. ¾ p., Engineering Record, December 14. 10 cts.

Road Traffic and Treatment. Knowledge of traffic essential to wise selection of pavement; traffic census; life of various materials. Paper before American Road Builders' Association. By W. D. Sohler. 1½ pp., Municipal Journal, January 2. 10 cts.

Proposed Standard Record of Street Traffic. Report to American Society of Municipal Improvements. By J. W. Howard. Chairman of Committee. Illustrated, 3 pp., Engineering News, January 2. 15 cts.

Relief of Traffic Congestion in San Francisco. ½ p., Engineering Record, December 7. 10 cts.

Case of Narrow Tires. Traction Engine Lugs and High Speed Autos Against Roads. Mr. E. W. Lilly. 1½ pp., Pacific Builder, December 21. 15 cts.

Economics of Highway Construction. By Clifford Richardson. Paper before American Road Builders' Association. 1¼ pp., Engineering Record, December 14. 10 cts.

Accounting System for Road Expenditures. By W. W. Crosby. 1¼ pp., Engineering Record, December 28. 10 cts. Administration of County Road Funds. By W. J. Roberts. 1 p., Pacific Builder, December 21. 15 cts.

Construction of Water-Bound and Bituminous Macadam. Paper before Good Roads Congress. By P. R. Agg. 1 p., Engineering & Contracting, December 11. 10 cts.

Road Drainage and Foundations. From informal discussion before American Society of Civil Engineers, and comments by Reginald Ryves. 2½ pp., Surveyor, December 27. 40 cts.

Suggested Improvement in Building Water-Bound Macadam Roads. By J. L. Mean. 2½ pp., Proceedings American Society of Civil Engineers, December. \$1.

Bituminous Road Surfaces. Paper before American Road Congress. By A. H. Blanchard. 2 pp., Municipal Journal, December 19. 10 cts. 2 pp., Concrete-Cement Age, December. 15 cts.

Some Features of Macadam Construction. By T. R. Agg. Paper before American Road Builders' Association. ½ p., Engineering Record, December 14. 10 cts.

Contractor, Problems of a Highway. Paper before American Road Builders' Association. By Hugh Murphy. 1¼ pp., Engineering Record, December 21. 10 cts. 3½ pp., The Bulletin of Contractors' Association, December. 10 cts. 2½ pp., Contractor, January 1. 20 cts.

Plant for Road Building. Paper before American Road Builders' Association. By F. E. Ellis. 1 p., Engineering Record, January 4. 10 cts. 1 p., Engineering & Contracting, December 11. 10 cts.

Testing of Road Building Rock. Physical. Illustrated, 2 pp., Good Roads, December 7. 10 cts.

Pavement Testing in Detroit. Lack of harmony between rattle test and service test of bricks; apparatus for testing pavements laid. Illustrated, 2½ pp., Municipal Journal, December 26. 10 cts.

Earth, Sand and Clay Materials. Qualities and Method of Application. Illustrated, 3½ pp., Southern Good Roads, December. 20 cts. 2 pp., Contractor, December 15. 20 cts. 2 pp., Good Roads, December 7. 10 cts.

Earth and Gravel Roads. By R. C. Terrell. Paper before American Road Builders' Association. ½ p., Engineering Record, December 14. 10 cts.

Sand-Clay Roads in North Carolina. 1½ pp., Engineering Record, December 7. 10 cts.

Maintenance and Drainage of Roads. By Ernest Lister. 1 p., Pacific Builder, December 21. 15 cts.

Association, Object of the Road Builders'. Presidential address of N. P. Lewis. ¾ p., Engineering Record, December 14. 10 cts.

American Road Builders' Association Convention. 1¼ pp., Engineering News, December 12. 15 cts.

Viaduct in St. Louis. New King's Highway. Illustrated, 2 pp., Contractor, January 1. 20 cts.

Concrete Highway Construction. Paper before American Road Congress. By A. N. Johnson. 4 pp., Concrete-Cement Age, December. 15 cts.

Concrete Construction of the Watertown Plank Road, Wisconsin. By H. J. Kuelling. Illustrated, 1 p., Engineering News, December 26. 15 cts.

Pavements of Cincinnati. Illustrated, 7 pp., Good Roads, December 7. 10 cts.

Bituminous Pavements for City Streets. By G. W. Tillson. Paper before American Road Builders' Association. 1 p., Engineering Record, December 14. 10 cts.

Municipal Paving in Holland. ¼ p., Municipal Journal, December 12. 10 cts.

Asphalt Material, Using Old. How Louisville resurfaces worn out macadam. By G. D. Crain, Jr. Illustrated, 1¼ pp., Municipal Journal, December 26. 10 cts.

History of Fifth Avenue Asphalt Paving. By Clifford Richardson. 1¼ pp., Engineering Record, January 4. 10 cts.

Niagara Falls Asphalt Repair Plant. ¾ p., Municipal Journal, December 19. 10 cts.

Brick, Uniformity of Paving. ½ p., Municipal Journal, December 26. 10 cts.

Brick Pavements, Thermal Effects on

Cement-Filled. Accurate measurements on expansion and contraction and observation of effect. Paper before American Society of Municipal Improvements. By J. E. Howard. Illustrated, 4 pp., Municipal Journal, December 12; Illustrated, 1½ pp., December 19. 10 cts. Illustrated, 3½ pp., Municipal Engineering, December. 25 cts.

Brick and Stone Block Paving. Communication from W. W. Crosby. ½ p., Municipal Journal, January 2. 10 cts.

Wood Block Pavement Laid by City Labor. By E. R. Dutton. Paper before American Road Builders' Association. ¾ p., Engineering Record, December 14. 10 cts. 1¼ pp., Engineering News, January 2. 15 cts. Illustrated, 3 pp., Municipal Engineering, December. 25 cts.

Granite Pavements, Grouted. Laid in Newark, N. J., and New England. Paper before American Society of Municipal Improvements. By W. A. Howell. 2 pp., Municipal Journal, December 26. 10 cts.

Concrete Pavement at Davenport, Ia. Construction of. By W. S. Anderson. Illustrated, 3½ pp., Engineering & Contracting, December 25. 10 cts.

Brantford Concrete Pavements. Illustrated, 2 pp., Canadian Engineer, December 5. 15 cts.

Vibrolithic Pavement. Paper before National Association of Cement Users. By R. C. Stubbs. ½ p., Rock Products, December 22. 10 cts.

Grade Crossing Elimination at Rahway, N. J. 2 pp., Engineering Record, December 28. 10 cts.

Report on Grade Crossings to National Association of Railway Commissioners. 6 pp., Public Service Regulation, December. 25 cts.

Elimination of Grade Crossings in Cities. Paper before Cleveland Engineering Society. By Robert Hoffman. 1 p., Engineering Record, December 14. 10 cts.

SEWERAGE AND SANITATION.

Sewer System and Disposal Plant at Belton, Tex. Illustrated, 1½ pp., Engineering & Contracting, January 1. 10 cts.

Sewage System and Disposal Plant at Phoenix, Ariz. Illustrated, 1 p., Engineering Record, December 7. 10 cts.

Sewage Treatment Standards. Abstract of Royal Commission's Report. By R. O. Whyne-Roberts. 1 p., Canadian Engineer, January 2. 15 cts.

Royal Commission on Sewage Disposal. Paper before Association of Managers of Disposal Works. By Col. Jones. 1 p., Surveyor, December 27. 40 cts. 1 p., Engineering Record, December 28. 10 cts.

Royal Commission Standards for Sewage Treatment and for Sewage Disposal Without Treatment. ¾ p., Engineering News, December 19. 15 cts.

Reports on Sewage Works at Ponoka. 3 pp., Canadian Engineer, December 19. 15 cts.

Utilization of Humus from Slate Beds. Paper before Society of Chemical Industry. By W. J. Dibdin. 1 p., Surveyor, December 6. 40 cts.

Operating Results of the Sewage Disposal Works at Bordentown, N. J. By C. M. Hartley. Illustrated, 1½ pp., Engineering & Contracting, January 1. 10 cts.

Tanks. Paper before Association of Managers of Sewage Disposal Works. By A. J. Martin. 2 pp., Surveyor, December 30. 40 cts.

Imhoff Tanks and Sprinkling Filters for Sewage Treatment at the Fulton County Almshouse, Georgia. By P. H. Norcross. Illustrated, 3 pp., Engineering News, December 26. 15 cts.

Imhoff Tanks and Percolating Filter in Operation in Atlanta, Ga. By W. A. Hansell, Jr. Illustrated, 1 p., Engineering News, December 12. 15 cts.

Lethbridge Sewage Disposal Works.

By T. A. Murray. Illustrated, 2 pp., Engineering Record, December 14, 10 cts.

Disinfection of Sewage and Sewage Filter Effluent. Results of Experiments of Massachusetts Board of Health. 2 1/4 pp., Engineering Record, January 4, 10 cts.

Pumping Station in Detroit. New Sewage. Illustrated, 1 1/2 pp., Engineering Record, December 21, 10 cts.

Pipe and Corrugated Culvert. Constructing Combination Corrugated. By J. M. Edy. Illustrated, 1 p., Engineering & Contracting, January 1, 10 cts.

Laying Submerged Sewer Outlet Pipe in Lake Ontario. Illustrated, 1 p., Engineering & Contracting, December 25, 10 cts.

New Bedford Intercepting Sewer. Reinforced concrete and cast iron; laying outlet thirty-three hundred feet from shore. By A. A. Talmage. Illustrated, 4 pp., Municipal Journal, January 2, 10 cts.

Laying 24-Inch Pipe Sewer in Quick-sand in Freezing Weather at North Toronto. 1 p., Engineering & Contracting, December 25, 10 cts.

Infiltration of Ground Water into Sewers. By J. N. Brooks. 7 pp., Proceedings American Society of Civil Engineers, December, \$1.

Concrete and Sewage Disposal Plant at Madison, Wis. Illustrated, 1 1/2 pp., Cement Era, December, 10 cts.

Use of Concrete in Sewers. Illustrated, 7 pp., Municipal Engineering, December, 25 cts.

Effect of Hydrogen Sulphide on the Concrete of Sewage Disposal Plants. From Bulletin Iowa College of Agriculture. By W. M. Barr and R. E. Buchanan. 2 1/4 pp., Engineering News, December 12, 15 cts.

Traps in House Drains. Effect of Intercepting. By Edward Willis. 2 pp., Surveyor, December 13, 40 cts.

Sanitary Control of the Ruhr River, Germany. By R. H. Gould. Illustrated, 1 p., Engineering News, December 19, 15 cts.

Public Health Administration. Its dependence upon reports of cases of sickness. By J. W. Trask. 5 pp., Public Health Reports, January 2.

Sanitation of Cities at the Exposition of Roubaix. By E. Nourrier. Illustrated, 10 pp., Technique Sanitaire, December, 60 cts.

Tendencies of Mortality Rates in England and Germany. By Dr. Silbergleit. 9 pp., Journal of State Medicine, December, 50 cts.

Death Rates in Large Cities. 3/4 p., Municipal Journal, December 19, 10 cts.

Cleanliness or Extermination. 1/4 p., Municipal Journal, December 12, 10 cts.

Typhoid Fever. Immunization Against. 1/4 p., Municipal Journal, January 2, 10 cts.

Value of the Public Health Laboratory in the Diagnosis of Typhoid Fever. By T. R. Brown. 6 pp., Bulletin Ohio State Board of Health, December.

Outbreak of Gastro-Enteritis and Typhoid Fever due to Drinking Water on Excursion Steamer. By L. L. Lumpkin. 11 pp., Public Health Reports, November 29.

Laws and Regulations Pertaining to Public Health. State. 11 pp., Public Health Reports, December 6; 12 pp., December 13; 8 pp., November 29; 11 pp., January 3.

Rules and By-laws of Ohio State Board of Health. 5 pp., Bulletin Ohio State Board of Health, December.

Municipal Ordinances. Rules and Regulations Pertaining to Public Health. 4 pp., Public Health Reports, December 6; 4 pp., December 13; 4 pp., November 29; 17 pp., January 3.

Testing Air for Carbon Dioxide. Simple Method of. By A. C. Norris. 1 1/2 pp., Heating and Ventilating, December, 10 cts.

Examination Outfits for Chemical and Bacteriological Field. By L. H. Van Ruskirk. Illustrated, 7 pp., Bulletin Ohio State Board of Health, December.

WATER SUPPLY.

Water Supply for San Francisco. Report on. By J. R. Freeman. Illustrated, 8 pp., Engineering News, December 26, 15 cts.

Reflections. Old and New, on the Condition of Surface Water Supply System. By W. Dunbar. 7 pp., Journal of State Medicine, December, 60 cts.

Investigation of Cambridge Water Supply. 1 p., Engineering Record, January 4, 10 cts.

Development of Ground Water Supply, La Crosse, Wis. Illustrated, 2 pp., Engineering & Contracting, December 18, 10 cts.

Effect of Safe Water Supplies on Typhoid Fever Rate. Paper before Association of Life Insurance Presidents. By A. J. McLaughlin. 2 pp., Canadian Engineer, December 12, 15 cts.

Water Supply for London. Illustrated, 2 pp., Canadian Engineer, December 19, 15 cts.

Pure Public Water Supplies. Paper before Central States Water Works Association. By F. B. Leopold. Illustrated, 1 1/2 pp., Fire & Water, January 8, 10 cts.

Pollution of Public Water Supplies. Some Recent Examples of the. By J. C. Thresh. Paper before Institution of Water Engineers. 2 1/2 pp., Surveyor, December 30, 40 cts.

Pollution of Water in the Mains at Chicago. From Report of H. L. Lucas. 1/4 p., Engineering News, December 12, 15 cts.

Water Works Operation in Chicago, 1911. 1 p., Engineering & Contracting, December 18, 10 cts.

To Improve St. Louis Water Works. New intake in Mississippi river and new supply from the Missouri. By H. M. Crutcher. Illustrated, 3 1/2 pp., Municipal Journal, January 2, 10 cts.

Purification Works. Operating Results at Cincinnati Water. 1 p., Engineering Record, December 7, 10 cts.

Methods Adopted by the City of Saskatoon for the Purification of Domestic Water Supply. By City Engineer Clark. 2 1/2 pp., Western Municipal News, December, 15 cts.

Recent Advances of the Science of Water Purification. Paper before Institution of Water Engineers. By Adolph Kenma. 4 pp., Surveyor, December 27, 40 cts.

Cost of Filtering Water at Philadelphia. 3/4 p., Engineering & Contracting, December 11, 10 cts.

Water Filtration in Minneapolis. By A. W. E. Fawkes. 10 pp., Illustrated, Municipal Engineering, December, 25 cts.

Sterilization of Water Supplies with Special Reference to the "Excess Lime" Method. By A. C. Houston. 11 pp., Journal of State Medicine, December, 60 cts.

What Hypochlorite Accomplishes. Paper before International Congress of Applied Chemistry. By C. A. Jennings. 2 pp., Engineering News, December 12, 15 cts.

Observations on the Disinfection of Lake Water with Calcium Hypochlorite. Paper before Illinois Water Supply Association. By Arthur Lederer and Frank Bachmann. 6 1/2 pp., Chemical Engineer, December, 25 cts.

Reservoir Regulation for the Ottawa River. By Emile Low. 1 p., Engineering News, January 2, 15 cts.

Large Water Reservoirs. 1/4 p., Municipal Journal, December 26, 10 cts.

Tanks. Value of Standpipes or. 1/2 p., Municipal Journal, December 12, 10 cts.

Construction of 600,000 Gallons Reinforced Concrete Water Tank. Illustrated, 1 1/2 pp., Engineering & Contracting, December 25, 10 cts.

Dam: The Reversed; A Hollow Concrete Dam of a New Type. By F. C. Osborn. Illustrated, 1 1/2 pp., Engineering News, December 19, 15 cts.

Increasing the Height of an Earth Dam with Reservoir in Service at Greenwich, Conn. Illustrated, 1 p., Engineering & Contracting, December 11, 10 cts.

What Will be the Final Lesson of the Austin, Pa., Dam Failure? 1 p., Engineering & Contracting, December 11, 10 cts.

Intake Pipe Line at Fort Myer, Va., River. By L. A. Doten. Illustrated, 1 p., Engineering & Contracting, December 11, 10 cts.

Metering of Water in Chicago. Use, Waste and. 1 p., Engineering News, December 26, 15 cts.

Argument for Water Meters in Chicago from the Standpoint of an Individual Householder. By P. T. Phillips. Illustrated, 4 pp., Engineering & Contracting, January 1, 10 cts.

Hydrants. Special Sprinkling. 1/4 p., Municipal Journal, January 2, 10 cts.

Theoretical Formula for the Flow of Liquids through Narrow Rectangular Channels. By Ernst Johnson. 1 1/4 pp., Engineering News, December 19, 15 cts.

Formula for Frictional Loss in a Check Valve. By C. D. Buerger. Illustrated, 1/4 p., Engineering Record, December 28, 10 cts.

Characteristics of Cup and Screw Current Meters. By B. F. Grote. Illustrated, 21 pp., Proceedings of American Society of Civil Engineers, December, \$1.

Electrolysis from Stray Electric Current. Paper before American Water Works Association. By A. F. Ganz. 46 pp., Stevens Indicator, October, 50 cts.

LIGHTING AND POWER PLANTS.

Street Lighting. Lighting business, residence and suburban districts, parks and boulevards; electric incandescent and arc lamps; gas lamps; spacing standards. Report to American Society of Municipal Improvements. By D. A. Hegarty, Chairman. Illustrated, 4 1/2 pp., Municipal Journal, January 2, 10 cts.

Street Lighting Facts and Figures. By F. W. Linebaugh. 4 pp., American Municipalities, January, 25 cts.

Modern System for the Illumination of City Streets. Paper before League of California Municipalities. By C. L. Corey. 2 pp., Pacific Municipalities, December, 25 cts.

New York City Discusses Improved Street Lighting. 1/2 p., December 28, Electrical Review, 10 cts.

Ornamental Street Lighting for Seneca Falls, N. Y. Illustrated, 1 p., Electrical World, December 14, 10 cts.

Electricity Versus Gas for Street Lighting. By T. Osborne. 1 1/4 pp., Electrical World, December 14, 10 cts.

Annual Street Lighting Schedules. For lighting and extinguishing lamps according to all night and moonlight systems. Table. Electrical World, December 7, 10 cts.

Fixtures. Standard Street Lighting for Chicago. Illustrated, 3/4 p., Electrical World, January 4, 10 cts.

Bracket Arm Magnified Arc Lighting at Missoula, Mont. Illustrated, 3/4 p., Electrical World, January 4, 10 cts.

Gas Works. Financial Problems of Municipal. 2 pp., Gas Age, January 1, 20 cts.

Effect of Cold Weather on Gas Supply. By C. W. Andrews. Paper before American Gas Institute. 1 p., Gas Age, January 1, 20 cts.

Confidence in the Accuracy of the Gas Meter. By J. P. Zingg. 1 p., American Gas Light Journal, December 23, 10 cts.

Acetylene Town Lighting. European Thoroughness in. Illustrated, 1 p., Acetylene Journal, January, 5 cts.

Lighting Plant of Perry, Kansas, Municipal. By G. C. Shadd. Illustrated, 1 p., Electrical Review, December 7, 10 cts.

Liability of Municipalities for Negligence in Operation of Electric Light Plant. 3/4 p., Municipal Journal, December 12, 10 cts.

Conduit Construction. Notes on Underground. By G. F. Speer. Illustrated, 2 pp., Electrical World, January 4, 10 cts.

Candle Power, Heat Value and. Report of Committee of the American Gas Institute. Gas Age, December 16, 20 cts.

Rates for Electric Service. Justification of Deviations in. By S. M. Kennedy. 1 1/2 pp., Public Service, January, 20 cts.

Power Company. Plant of the New England on the Deerfield River. Illustrated, 8 pp., Electrical World, December 28, 10 cts.

Federal Water-Power Policy. By M. O. Leighton. 3 1/2 pp., Engineering News, December 12, 15 cts.

Coal. Storage of. By Everard Brown. Illustrated, 2 1/2 pp., Steam, December, 10 cts.

Lignite and Its Uses. Paper before Regina Engineering Society. By R. O. Whyne-Roberts. 5 1/2 pp., Canadian Engineer, December 19, 15 cts.

FIRE DEPARTMENT.

Apparatus and Equipment in 1912. Illustrated, 9 pp., Fireman's Herald, January 4, 5 cts.

Baltimore Fire Department Autos. 1/4 p., Municipal Journal, December 19, 10 cts.

Testing Motor Pumping Engines. By G. W. Booth. 1 1/2 pp., Fireman's Herald, December 14, 5 cts.

Fire Alarm Stations Indicated on Lamp Posts. Illustrated, 1/4 p., Municipal Journal, December 12, 10 cts.

Fire Alarm Systems. The Edwards central station system. Illustrated, 2 pp., Electrical Review, December 21, 10 cts.

Notes on the Chicago Fire Alarm System. Illustrated, 4 pp., Electrical Review, December 7, 10 cts.

Milwaukee Fire and Police Alarm. Telephone and alarm telegraph system and power plant, fire alarm boxes, employees. By W. S. Burnett. Illustrated, 4 pp., Municipal Journal, January 2, 10 cts.

College. New York Fire. 1/4 p., Municipal Journal, December 19, 10 cts.

Efficiency. Hints for Young Firemen to Improve. Paper before Fire Brigade Conference, Brisbane, Australia. By T.

S. Marshall. 1 p., Fire & Water, January 8. 10 cts.

Hazard at Youngstown, O., Underwriters' Report on Fire. 1½ pp., Fire & Water, January 1. 10 cts.

Weak Structural Conditions at Providence. Report of National Board of Fire Underwriters. 2 pp., Fire & Water, December 11. 10 cts.

Report on Water Supply and Fire Fighting Appliances of Victoria, B. C., 1 p., Canadian Engineer, December 12. 15 cts.

State Fire Marshals' Reports Regarding Safety of Acetylene. Acetylene Journal, December. 5 cts.

GOVERNMENT AND FINANCE.

Home Rule for Cities and Towns. By M. F. Donegan. 5 pp., American Municipalities, December. 25 cts.

Women and Local Government in the United Kingdom. By H. M. Dermitt. 7 pp., National Municipal Review, January. \$1.25.

Controlled-Executive Plan, Theory of the New. By R. S. Childs. 5 pp., National Municipal Review, January. \$1.25.

Municipal Court of Philadelphia. By R. W. Barrett, S. Scoville and H. Olson. 18 pp., City Club Bulletin, Philadelphia, January 2.

Public Utilities, State vs. Municipal Regulation of. By J. M. Eshleman and L. R. Works. 20 pp., National Municipal Review, January. \$1.25.

State Versus Municipal Control. By W. J. Hagenah. 3 pp., Public Service, January. 20 cts.

Two Conflicting Failures of Valuation of Public Service Companies. By H. P. Gillette. 1½ pp., Engineering & Contracting, December 11. 10 cts.

Budget System, Work-Quantity and Unit Cost Municipal. 1 p., Engineering News, December 26. 15 cts.

Successful Budget-Method Protest. Illustrated by extracts from the report of the bureau of street cleaning, Richmond Borough, New York City. Illustrated, 5 pp., Engineering News, December 26. 15 cts.

Simplcity, Publicity and Efficiency. By C. R. Woodruff. 10 pp., National Municipal Review, January. \$1.25.

Bureau of Public Efficiency. By Meritt Cerf. 9 pp., National Municipal Review, January. \$1.25.

Taxation in Philadelphia. By L. F. Post. 11 pp., National Municipal Review, January. \$1.25.

Reform in Local Taxation by the Taxation Plan. By W. C. Kierstadt. Paper before Union of New Brunswick Municipalities. 3 pp., Canadian Municipal Journal, December. 15 cts.

Indebtedness in Wisconsin Cities. By Duane Mowry. ¼ p., Municipal Journal, December 19. 10 cts.

License, Transient Merchant and Pedler's. By G. T. Reddick. 3½ pp., American Municipalities, December. 25 cts.

STREET CLEANING AND REFUSE DISPOSAL.

Street Cleaning in Philadelphia. ¼ p., Municipal Journal, December 19. 10 cts.

Street Cleaning in Chicago and Suggested Standards for Increasing the Efficiency. 3 pp., Engineering & Contracting, January 1. 10 cts.

Cleaning a Great City. Night cleaning in commercial district of New Orleans. By G. S. Smith, Commissioner of Public Works. 1 p., Municipal Journal, December 12. 10 cts.

Street Cleaning in Downtown Chicago. 1 p., Engineering Record, December 28. 10 cts.

Street Cleaning at Washington, D. C. 1½ pp., Engineering & Contracting, December 18. 10 cts.

Street Cleaning and Garbage Collection Methods in Chicago. Equitable distribution of funds sought by standardizing the work. 2 pp., Engineering Record, January 4. 10 cts.

Dust Prevention in St. Paul. Sprinkling and oiling streets, methods and costs; assessments. By G. H. Herrold. Illustrated, 2½ pp., Municipal Journal, January 2. 10 cts.

Refuse, Collection and Disposal of Municipal, in Evanston. 1½ pp., Engineering & Contracting, December 11. 10 cts.

STRUCTURES AND MATERIALS.

Bridge Building, Present Status of. By F. P. McKibben. Illustrated, 4 pp., Concrete-Cement Age, December. 15 cts.

Lift Span Highway Bridge in Portland. Illustrated, ¼ p., Municipal Journal, December 26. 10 cts.

Recent Concrete Bridge Work in Pittsburgh, Pa. Illustrated, 3 pp., Engineering & Contracting, December 25. 10 cts.

City Bridge Floors Under Heavy Traffic. ½ p., Engineering Record, December 7. 10 cts.

An Opportunity for a Bridge Across the North River at New York City. By Gustav Lindenthal. 1½ pp., Engineering News, December 19. 15 cts.

Opportunity for Building the Greatest Bridge in the World. 1½ pp., Engineering News, December 19. 15 cts.

Concrete Arch Bridge. Three reinforced concrete spans at Pittsburgh. By W. E. Patterson. Illustrated, 2 pp., Municipal Journal, December 26. 10 cts.

Two Concrete Arch Bridges in Pittsburgh. Illustrated, 7 pp., Engineering News, December 19. 15 cts. Illustrated, 2 pp., Engineering Record, December 21. 10 cts.

Construction of Fifth Street Viaduct, Fitchburg, Mass. Illustrated, 2 pp., Engineering Record, January 4. 10 cts.

Cement Gun, Notes on the Operation of the. By O. J. Swenson. Illustrated, 2 pp., Engineering News, December 12. 15 cts.

Cement Sieve Specifications. Work of U. S. Bureau of Standards. By R. Y. Ferner. 2½ pp., Engineering Record, December 28. 10 cts.

Long Time Tests of Portland Cement. By I. Hiroi. Illustrated, 6 pp., Proceedings American Society of Civil Engineers, December. \$1.

Concrete, Electrolysis of. Paper before National Association of Cement Users. By E. B. Rosa, B. McCollum and O. S. Peters. Illustrated, 7 pp., Engineering News, December 19. 15 cts.; ¼ p., Engineering Record, December 7. 10 cts.; 1½ pp., Dec. 21.

Further Light on the Effects of Electric Current in Concrete. 1 p., Engineering News, December 26. 15 cts.

Keeping Concrete Costs. By M. C. Tuttle. 2 pp., Engineering Record, January 4. 10 cts.

Ornamental Use of Concrete in Playground Structures. 7 pp., Concrete-Cement Age, December. 15 cts.

Tests of Materials for Waterproofing Concrete. By C. M. Chapman. Paper before National Association of Cement Users. 1 p., Engineering Record, December 21. 10 cts.

Some Points in the Design and Construction of Reinforced Concrete. Presidential Address before Concrete Institute. By E. P. Wells. 1½ pp., Engineering News, January 2. 15 cts.

Methods of Tests for Concrete Materials. Report of Committee to National Association of Cement Users. 2 pp., Engineering News, January 2. 15 cts.

MISCELLANEOUS.

Traffic Regulation on Fifth Avenue, Proposed. ½ p., Engineering Record, December 21. 10 cts.

Regulating Stopping of Cars. Powers of municipalities to regulate street railroad stops. 1¼ pp., Municipal Journal, January 2. 10 cts.

Subway, Excavation and Timbering on Section 2, Lexington Avenue. Illustrated, 2½ pp., Engineering Record, December 14. 10 cts.

Utilizing Electrical Energy in the Construction of Subway in Boston. Illustrated, 3 pp., Electrical World, January 4. 10 cts.

Billboard and Other Forms of Outdoor Advertising. 14 pp., City Bulletin, Chicago, December 15.

Street Names on Sidewalks. ¼ p., Municipal Journal, December 19. 10 cts.

Flood Protection of Kansas City. By E. V. Murray. Illustrated, 3 pp., Engineering News, December 26. 15 cts.

Surveying in Brooklyn, City. Paper before Brooklyn Engineers Club. By J. B. Stein. Illustrated, 6 pp., Engineering News, December 19. 15 cts.

Contour Survey of Bushey, Herts. By A. J. Laing. Illustrated, 2 pp., Surveyor, December 6. 40 cts.

Reclaiming a Large Tract by River Protection Work at Kansas City. By N. N. Fitch. Illustrated, 2 pp., Engineering Record, December 28. 10 cts.

Municipal Reclamation of Waste Lands. Los Angeles plants trees on arid plains owned by city. By B. A. Heinly. Illustrated, 2 pp., Municipal Journal, December 19. 10 cts.

Engineers, Proposed Code of Ethics for. 1½ pp., Engineering News, January 2. 15 cts.

Status of the Engineer. 3 pp., Engineering News, January 2. 15 cts.

Bidding Bonds no Longer Required. ¼ p., The Bulletin of General Contractors' Association, December. 10 cts.

Damages for Delay, Deduction of Liquidated. By W. B. King. 1½ pp., Engineering Record, December 14. 10 cts.

Plant Selection, Importance and Economy of. By D. J. Hauer. 2 pp., Contractor, December 15. 20 cts.

Method of Using Picks and Shovels. By D. J. Hauer. 2 pp., Contractor, January 1. 20 cts.

Management, Present State of the Art of Scientific. Abstract of majority report of committee of American Society of Mechanical Engineers, 5 pp., Industrial Engineering, December. 20 cts.

Convention of the National Association of Cement Users, Annual. 2 pp., Engineering News, December 19. 15 cts.

Reports, Municipal. ¼ p., Municipal Journal, December 26. 10 cts.

Research and Reference Bureaus. By E. M. Salt. 9 pp., National Municipal Review, January. \$1.25.

Supplies, Purchase of. Paper before League of California Municipalities. By Adolph Koshland. 2½ pp., Pacific Municipalities, December. 25 cts.

Automobiles, Cost of San Francisco. ½ p., Municipal Journal, December 19. 10 cts.

Cost of Operating Municipal Autos. ¼ p., Municipal Journal, December 12. 10 cts.

City Planning Competition. ¼ p., Municipal Journal, January 2. 10 cts.

Town Planning and Civic Improvement. By C. M. Mitchell. 5 pp., Canadian Engineer, December 26. 15 cts.

Town Planning from an Engineering Aspect. Paper before Society of Engineers. By E. R. Matthews. 1½ pp., Engineering Record, December 14. 10 cts.

New York State City Planning Bill. 2 pp., Buffalo Live Wire, December. 10 cts.

Satellite Cities. By G. L. Taylor. Illustrated, 14 pp., Survey, December 7. 25 cts.

Municipal Works in Hand at York. Paper before Institution of Municipal and County Engineers. By F. W. Spurr. 2 pp., Surveyor, December 13. 40 cts.

Improvement of a Street Intersection. By R. J. Harding. Illustrated, ½ p., Municipal Journal, December 19. 10 cts.

What Kansas is Doing for her Municipalities. By R. R. Price. 4½ pp., American Municipalities, January. 25 cts.

Port of Para. Illustrated, 18 pp., Bulletin Pan American Union, October. 25 cts.

Inland Port of Manchester. Illustrated, 5 pp., Engineering News, December 12. 15 cts.

Drinking Fountains.—City Necessities. ¼ p., Municipal Journal, December 12. 10 cts.

Street Fountains are Unique. Illustrated, ¼ p., Municipal Journal, December 26. 10 cts.

Bubbling Fountain in a Horse Trough. Illustrated, ¼ p., Municipal Journal, December 26. 10 cts.

Telephone and Telegraph Rates and Service. 3 pp., Public Service Regulation, December. 25 cts.

Public Utilities of Newark, Ohio. By W. G. Deacon. Illustrated, 5½ pp., Public Service, January. 20 cts.

Public Relations of Public Utilities. By Harold Almert. 3 pp., Public Service, January. 20 cts. 2½ pp., Electrical Review, December 7. 10 cts.

Relation of Municipal Public Utility Corporation to the Public. Paper before League of California Municipalities. By H. W. Reed. 9 pp., Pacific Municipalities, December. 25 cts.

Great Problem of Public Utility Companies. By H. M. Byllesby. 1½ pp., Public Service, January. 20 cts.

Suggested Sliding Scale of Dividends for Street Railways. Determined by Quality of Service. By J. W. S. Peters. 8 pp., National Municipal Review, January. \$1.25.

School Building in Los Angeles. Unique. Illustrated, ¾ p., Municipal Journal, December 12. 10 cts.

Library Books, Sterilizing. ¼ p., Municipal Journal, December 26. 10 cts.

Playgrounds, Relation of Boy's Clubs and. Paper before Playground and Recreation Association. 5 pp., The Playground, January. 25 cts.

Evening Recreation Centres. Paper before New England Institute of Playground and Recreation Association. By Mary P. Follett. 8 pp., The Playground, January. 25 cts.

What Are the Best Games for Boys in Crowded Cities? Paper before Playground and Recreation Association. By Joseph Lee. 2 pp., The Playground, January. 25 cts.

Games for Girls in Large Cities. Paper before Playground and Recreation Association. (Continued on page 110.)

NEWS OF THE SOCIETIES

Calendar of Meetings.

January 11-25.

THIRTEENTH NATIONAL AUTOMOBILE SHOW.—Madison Square Garden and Grand Central Palace, New York City. H. W. Perry, Manager, 7 East 42d Street, New York City.

January 17-18.

COLORADO GOOD ROADS ASSOCIATION.—Annual Convention, Denver, Col.—W. H. Emmons, Secretary, Denver.

January 17-18.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Sixtieth Annual Meeting, Society House, New York City.—Chas. Warren Hunt, Secretary, 220 W. 57th Street, New York City.

January 21-23.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—Annual Convention, Chicago, Ill.—F. J. Angus, Secretary, B. & O. R. R. Co., Baltimore, Md.

January 21-23.

AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS.—Annual meeting at New York City. W. W. Macon, Secretary, 29 West 39th Street, New York City.

January 22-23.

OHIO MUNICIPAL LEAGUE.—First Annual Meeting, Columbus, O. Mays Fesler, Secretary, 825 Engineers' Building, Cleveland, O.

January 22-24.

ILLINOIS SOCIETY OF ENGINEERS AND SURVEYORS.—Annual meeting, Chicago, Ill.

January 28-30.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Annual meeting, Montreal, Que. C. H. McLeod, Secretary, 413 Dorchester Street, West Montreal.

February 26-March 8.

CLAY PRODUCTS EXPOSITION. Coliseum, Chicago.

INTERNATIONAL ROADS CONGRESS.—Third Congress, London, England. W. Rees, Jeffreys Secretary, Queen Anne's Chambers, Broadway, Westminster, London, S. W.

The Municipal Engineers of the City of New York.

The annual meeting of the society will be held at 8 p. m. in the Engineering Societies Building, 29 West 39th street, Manhattan, on Wednesday, January 22, 1913. The business of this meeting will be the reading of the annual report of the president's address, and the canvassing of the ballots for officers.

The house committee wishes to announce that, after the business of the meeting has been transacted, the Society will be entertained by a lecture on the Panama Canal by Mr. James W. Nelson, president of the Brooklyn Engineers' Club. This lecture will be illustrated by lantern slides. Members and their ladies are invited to be present at this lecture, after which refreshments will be served, followed by dancing. George A. Taber, secretary.

American Association for the Advancement of Science.

At the meeting of Section D. Engineering, on Friday, January 3d, a program of thirty papers devoted to Highway Engineering and related subjects occupied the morning and afternoon sessions. The titles of the papers and authors have been published in a previous issue of the Municipal Journal. The sessions were presided over by

Professor Arthur H. Blanchard as Chairman and Professor George W. Bissell as Secretary.

On Saturday, January 4th, many of the engineers in attendance visited the plant of The Deckman-Duty Company at which Dunn wire-cut-lug paving brick are manufactured. The inspection trip of the morning, which was made with automobiles, also included the examination of various sections of brick and stone block pavements in Cleveland. The tour of inspection was made through the courtesy of Mr. F. B. Dunn and the officials of The Deckman-Duty Company and the National Paving Brick Manufacturers' Association, who, on the preceding evening, entertained many of the engineers present at a dinner given at the Cleveland Athletic Club.

Efficiency Society.

Secretary H. F. J. Porter, 89 West 39th street, New York City, has issued the following tentative program for the annual meeting, 29 West 39th street.

MONDAY, JANUARY 27.

9:30 a. m.—President's Address, Business Meeting, Election of Directors.

10:30 a. m.—Symposium on Organization, Discussion on the necessity of charts of organization.

1:00 p. m.—Adjournment for luncheon.

2:00 p. m.—Symposium on Management, Discussion on democracy in industry and "securing the consent of the governed."

5:00 p. m.—Adjournment.

7:00 p. m.—Dinner at the Aldine Club, 200 Fifth avenue.

8:30 p. m.—Symposium on Efficiency in the Government Organization, National, State and Municipal, Discussion on a readjustment of the governmental departments.

10:30 p. m.—Adjournment.

TUESDAY, JANUARY 28.

10:00 a. m.—Symposium on Industrial Relations, Discussion on the relations between Employer, Employee and the Community.

1:00 p. m.—Adjournment for luncheon.

2:00 p. m.—Symposium on Industrial Hygiene and Safeguards Against Occupational Disease and Accident.

3:30 p. m.—Symposium on Safety; (1) In Marine Transportation; (2) In Land Transportation; (3) In Crowded Buildings; (4) From City Conflagrations; (5) From Forest Fires; (6) In Mines; (7) In Dam Protected Districts; (8) From Freshet Floods.

This session will be illustrated by moving pictures and lantern slides demonstrating the efficiency obtained by conserving the human element in industry.

5:00 p. m.—Closing business session.

5:30 p. m.—Final adjournment.

Illinois Firemen's Convention.

The twenty-fifth annual convention was held at Ottawa, January 14-16. The technical part of the meeting consisted in papers and discussions of the following topics:

Address by Prof. B. F. Staymates, of Clinton, Ill.—"Indemnity for Firemen."

Topic, "The Best Method of Selecting Hose for Fire Department Purposes"—George F. Hand, of Chicago.

Topic, "The Automobile Combination Wagon; Its Adaptability"—Chief George Rang, Aurora.

Address by John McDonnell, Chief of Fire Prevention Bureau, of Chicago, on "Fire Prevention and Public Safety; Its Relation to the Fire Department."

Address by Hon. W. F. Smith, Mayor of Vandalia—"The Municipal Government's Obligation to Its Volunteer Firemen."

Topic, "The Question Box"—Chief Edward A. Keiser, of Mt. Olive.

Address by Fire Marshal Charles F. Seyferlich, of Chicago, "The Chicago Fire Department and the Illinois Firemen's Association."

Topic, "The Safe and Sane Storage of Combustibles and Explosives to Safeguard Firemen While in the Performance of Their Hazardous Duties"—Chief Frank Landon, of Joliet.

Topic, "First Aid to the Injured at a Fire"—Dr. August Bechtold, of New Athens.

Address, "Fire Losses and Fire Prevention"—H. N. Kelsey, of Chicago.

Topic, "The Practical Use of Automobile Fire Engine as Fire Fighting Apparatus," by Chief Frank E. Thomas, of Rockford.

Topic, "The Equipment and Efficiency of the Volunteer Fire Service"—James J. Dougherty, Ottawa.

Topic, "The Tournament Question," by David Turnbull, of Monmouth.

Topic, "High Pressure Fire Service; Its Operation and Efficiency"—T. D. Stinson, Superintendent of Waterworks, Aurora.

Topic, "Why Should the Chief of the Fire Department be Blamed for Conditions Over Which He Has No Control"—Chief William Haible, of Elgin.

Topic, "The Volunteer Fire Service," by Assistant Chief E. E. St. Peter, of River Forest.

Topic, "The Need of High Pressure for Fire Services"—G. F. Hoerner, of Mendota.

American Institute of Electrical Engineers.

The 279th meeting of the American Institute of Electrical Engineers was held in New York January 10, 1913, in the auditorium of the Engineers' Building at 8:15 p. m. The meeting was held under the auspices of the Power Station Committee, and a paper was presented by B. G. Lamme, entitled "High-Speed Turbo-Alternators—Designs and Limitations." This paper is published in the A. I. E. E. "Proceedings" for January, and reprint copies are available for distribution on application to Institute headquarters.

PERSONALS

Carroll, J. E., formerly City Engineer, Crookston, Minn., has been appointed Assistant Commissioner of Public Works, St. Paul, Minn., where he will have charge of new construction.

Corrington, F. F., Riverside, Cal., has been appointed Chief of Police.

Dodd, Frederick S., Totowa, N. J., has been appointed Chief of the Fire Department.

Herold, Dr. Herman C. H., Newark, N. J., having held the office continuously since 1895, has again been elected president of the Board of Health. Dr. Herold has been a member of the board since the early 80s.

Hooke, Robert, Chattanooga, Tenn., has been re-elected City Engineer.

Sumner, L. M., Cordele, Ga., has been elected Chief of Police and W. G. Webb has been made Superintendent of Waterworks.

Sedgwick, Prof. William T., of the Boston Institute of Technology, of Washington, and member of the advisory board of the hygienic laboratory to the Public Health Service here, was appointed expert to co-operate with officers of the Public Health Service in an examination of the head waters and drainage basin of the Potomac River.

Vernon, Stephen B., five years connected with the Syracuse Intercepting Sewer Board, has been appointed engineer in charge of design and construction of the \$1,000,000 sewer system to be built by the city of Albany, N. Y.

Yale, George C., Meldrum, Ore., has been appointed City Engineer of Oregon City.

The following mayors have been elected:

GEORGIA.

Milner.....Rev. J. C. Baird
Ochlochnee.....Remer Singletary
Jenkinsburg.....J. W. Childs

DELAWARE.

Milford.....Thomas A. Kirby

WEST VIRGINIA.

Bridgeport.....William Pell
Barnestown.....Frank Clayton
Broad Oaks.....E. F. Findley
Adamston.....Walter Bumgardner
Northview.....John H. Douglass
Lumberport.....M. L. Riblett
Shinnston.....H. T. Shinn

The following city officials have been recently appointed:

Westbrook, Me.—Street Commissioner, A. D. Woodbury; Chief of Fire Department, O. C. Libby; City Forester, Cleophas Boucher; City Electrician, R. W. Cousins; Police Commissioner, A. H. Borrowghs; City Clerk, Benjamin Marshall; Highway Commissioner, Marshall Ouellette Rood; New Streets Committee, Johnson, Strout, Post, Miller, Fairbanks; Fire Committee, Girard, Ouellette, Fairbanks; Sewer Committee, Post, Girard, Marshall; Lighting Committee, Rood, Johnson, Hulit; Police Committee, Strout, Post, Gagnon; Health Committee, Miller, Gagnon, Smith.

Perth Amboy, N. J.—Mayor Garretson has named the following council committees: Fire, Kutcher, Seaman, Wilson; Police, Clark, Sandbeck, Hilker; Lamps and Lights, Clark, Kutcher, Hilker; Streets and Sewers, Seaman, Kutcher, Wilson; Water, Wilson, Sandbeck, Kutcher; Finance, Hilker, Sandbeck, Clark.

New Bedford, Mass.—The following joint committees have been named: Finance, Mayor (chairman), Aldermen Chausee; Councilmen Cassidy, Collins, Jones, Peirce, Knowles, Fernandes; Fire Department, Aldermen Gleason (chairman), Sherman, Councilmen Hughes, McCarty, Percy; Roads, Bridges and Sewers, Aldermen Lowney (chairman), Glenon; Councilmen Percy, Abrams, Peirce; Street Lights, Aldermen Sherman (chairman), Chausee; Councilmen Hamel, Leveille, Collins; Waterworks, Aldermen Lees (chairman), Chausee; Councilmen Keller, Woodward, Parker.

Ventnor, N. J.—Dahlgren Albertson has been elected presiding officer of the Council. Other officials appointed or reappointed are as follows: City Solicitor, John S. Westcott; City Engineer, W. I. Risley; Building Inspector, Wm. E. Albertson; City Electrician, A. C. Farrand; Street Foreman, John Hayes; member of the Board of Health, Dr. Thomas Youngman.

Princeton, N. J.—Mayor Phillips has named the following committees: Finance, E. N. Norris (chairman); W. R. Matthews, Richard Stockton; Streets, William R. Matthews, Thornton Conover, Richard Stockton; Lighting, William R. Matthews, Thornton Conover, Jos. P. Brophy; Police, Thornton Conover, E. N. Norris, William R. Matthews; Fire and Water, Thornton Conover, E. M. Norris, J. B. Brophy; Sewers, T. J. Lynch, Thornton Conover, J. B. Brophy.

Minneapolis, Minn.—Karl De Laitre, new Council President, has chosen the following committees: Roads and Bridges, McInerny, Chase, Barr, Hooker, Hill; Good Roads, Parks, Engen, Moore, Bow, Zierner; Street Grades and Additions, Voelker, Getchel, Parks, Wall, and Ortquist; Fire, Williams, Mehan, Ritten, Anderson and McInerny; Fire Prevention, Mehan, Heywood, Robb, Hill, and Chase; Waterworks, Ortquist; Chase, Hooker, Moore and Heywood; Public Lighting, Hooker, Hill, Hawley, Getchell and Walker; Sewers, Getchell, Hill, Mehan, Ritten and Williams; Commerce and Markets, Bow, Williams, Sweeney, Kistler and Voelker; Police, Ritten, Anderson, Heywood, Johnson and Barr; Paving, Walker, Sweeney, Engen, Kistler and Zierner; Underground Wires, Sweeney, Hooker, Kistler, Williams and Walker; Public Recreations and Amusements, Chase, Ritten, Peterson, Engen and Barr; Power and Crematory, Heywood, Bow, Mehan, Johnson and

Anderson; Health and Hospital, Kistler, Parks, Hawley, Robb and Getchell. F. W. Cappelen was elected City Engineer, succeeding Andrew Rinker; Dr. C. E. Dutton, Health Commissioner, succeeding Dr. P. M. Hull.

Oregon City, Ore.—Mayor Linn E. Jones has made the following appointments: Chief of Police, E. L. Shaw; City Attorney, W. M. Stone; Street Supervisor, Charles C. Babcock.

Atlanta, Ga.—On motion of Mayor Courtland Winn, Dan Carey has been re-elected manager of the Park Department.

Lockport, N. Y.—Mayor Brock has named Alderman-at-Large John J. Burt as President of the Common Council. The following members of committees have been selected: Finance, Greenman, McCoy, Burt, Hurst, Rooney; Streets, McCoy, Greenman, Sharp, Hopkins, Hurst, Rooney, Smith, Burke; Sewers, Hopkins, Hurst, Sharp, Rooney, Smith; Fire and Water, Hurst, Greenman, Mullaney, Burke, McCoy; Lamps and Gas, Sharp, Greenman, Burke, Burt, Mullaney.

Elizabeth, N. J.—The following members of committees have been appointed: Streets and Highways, Rieke, McLeod, Becker; Sewers and Drainage, Neafsey, Stegmaier, Cummings; Public Buildings, Butler, Baldwin, McNamara; Health, Durett, Kopp, Nugent; Police, Manning, Tucker, Kitzler; Street Lighting, Brucklacher, Clark, Dahlinger; Parks and Shade Trees, Cummings, Marsh, Reagan; Docks, Wharves and Piers, Butler, Tucker, Summerton; Railroads and Street Railways, Wagner, More, Neafsey; River Improvement, Dahlinger, Clark, Marsh, Manning; Municipal Water Plant, Durett, Rieke, Stegmaier, Baldwin, McLeod; Removal of Overhead Telephone, Telegraph and Electric Wires, Brucklacher, Kopp, Tucker, McLeod, Summerton.

Newark, N. J.—The Board of Works selected Patrick H. Ryan as its President. John J. Berry was appointed Secretary to the President, later to become Secretary of the Board, succeeding William E. Greathead.

Rahway, N. J.—The following committee of the Water Board have been named: Finance, Commissioners Ransom, Plum and Valentine; Water Rates, Mayor Fyffe, Plum and Ransom; Pumping Works, Commissioners Plum, Ransom, Valentine; Distribution and Extension, Councilman Valentine, Commissioner Plum, Mayor Fyffe; Supplies, Commissioner Ransom, Councilman Valentine, Mayor Fyffe.

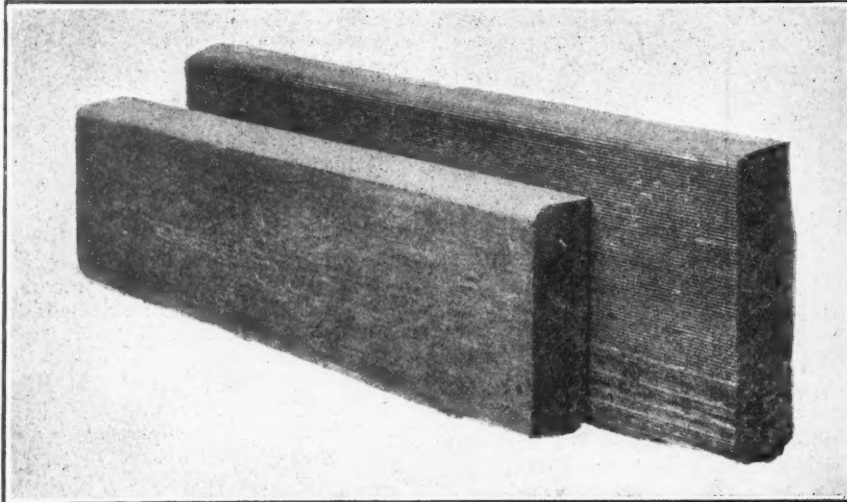
Lowell, Mass.—Andrew E. Barrett has been elected President of the Municipal Council. Departments have been assigned to Commissioners as follows: Finance, Brown; Streets and Highways, Donnelly; Waterworks and Fire Protection, Barrett; Public Property, Cummings.

MUNICIPAL APPLIANCES

Berea Curbing.

The Ohio Quarries Company, Cleveland, O., have quarried and dressed Berea stone for curbing and flagging

wheel—no hard base or core from which the rubber will cut away. There are no joints to separate and cause trouble. The side flanges grip the base



MACHINE DRESSED BERA CURBING.

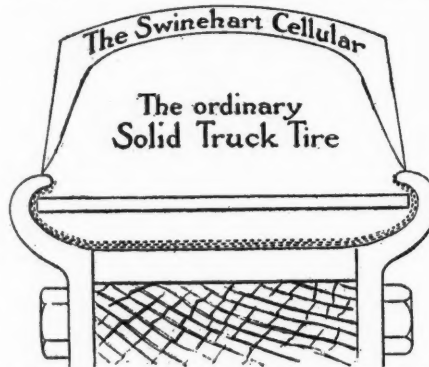
for many years. The use of the stone for nearly half a century affords proof that it is good. It is more durable than most cement work and also handsomer in color and general appearance. It may be used late in the fall or early in the spring regardless of weather conditions, under conditions where concrete work may be injured by freezing. After the pavement in a street is worn out Berea curbing may be re-jointed and used again. The peculiar merit of the structure of the stone is that when fresh from the quarry it is easy to dress. With age it hardens and has excellent weather resisting qualities.

At the present time the demand is largely for the machine dressed stone, which is a very handsome stone as seen in the illustration.

Cellular Truck Tire.

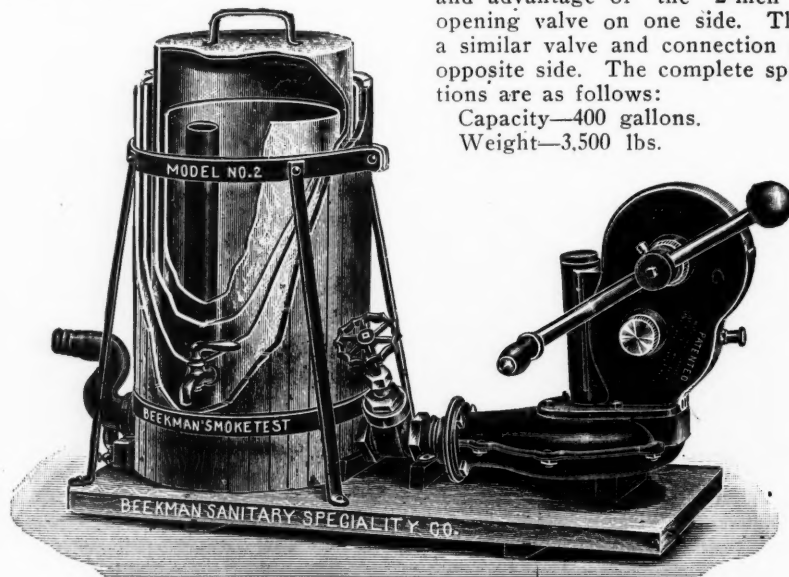
The Swinehart Tire and Rubber Co., Akron, O., make a cellular truck tire, an outline of which is shown in the illustration, for which unusual mileage in service is claimed. The cut shows the oversize features, from which some of the extra mileage is accounted for. However the main features are the holes or cells in the tread which reduce heat action by providing cooling air spaces throughout the rubber. The base is the modeled clincher type with beads similar to the ordinary clincher pneumatic. Reinforcing cross wires are imbedded in the base, running from side to side, about 1½ inches apart all around the tire. The ends of these wires are enclosed and protected, as well as the base of the tire, by layers of frictioned fabric, preventing moisture from getting to the cross wires or rubber in the base. There are no circumferential, internal or side-retaining wires. The tire is flexible, easily applied to

of the tire securely and press against the fabric on the sides of the base,



OUTLINE OF SOLID AND CELLULAR TIRES.

which transfers the pressure to the ends of the cross bars, holding the tire on the rim until worn out.



SANITARY SMOKE-PEPPERMINT MACHINE.

Smoke-Peppermint Machine for Testing Drainage Systems.

The Garrison Brass and Machine Works, 312 West 34th street, New York City, manufacture the Beekman Sanitary Smoke-Peppermint machine for testing drainage systems. The machines are made in three styles, all having the same essential features as that of the number 2 machine, which is illustrated. The device consists essentially of a container in which smoke or peppermint vapor is generated, a rotary air pump operated by hand which forces air through the container into the discharge pipe, thence to the drainage system being inspected. The whole apparatus is mounted on a platform with wheels. The pump is strong enough to keep the system under pressure sufficient to force vapor or smoke out through even a very small leak in pipes or fixtures.

The machines are used by sanitary inspectors and health departments in cities where efficient plumbing inspection ordinances are in force. The test itself is an old one, having been in use in England for many years. The construction of a convenient machine for applying the test and maintaining an air pressure in the pipe system is, however, comparatively recent and American. The water test, sometimes used, is insufficient, as that is made on the roughing only, which does not detect dangerous defects in the fixtures themselves or imperfect setting.

To facilitate the introduction of this testing system in cities having no smoke test ordinance but where one is under consideration, the Garrison Brass and Machine Works offers to make practical demonstrations of the value of their machines.

Albany Heating Tank.

The Albany Belting & Supply Co., 372 Broadway, Albany, N. Y., are the sales agents for a 400-gallon tar tank which is made exclusively for them. The illustrations show the general outline of the tank and the inside or bowl, the latter shows clearly the location and advantage of the 2-inch quick opening valve on one side. There is a similar valve and connection on the opposite side. The complete specifications are as follows:

Capacity—400 gallons.
Weight—3,500 lbs.

Material—3-16 inch boiler plate, reinforced with angle iron.

Dimensions of tank—96 inches long, 48 inches wide, 48 inches high.

Fire box—48x48 inches, lined on four sides with cast iron plates, with 1½ inch air space between lining and tank to prevent warping and hold heat.

Grates—Sectional cast boiler grates.

Boiler—Is made of 3-16 inch boiler plate, rolled in one piece, thus avoiding any chance of leaking. It is made separate from tank, and held in place by bolts.

Davit—Is made of extra heavy wrought iron pipe, with supporting brackets on either side of tank, so that it may be attached and worked on either side, without turning tank around.

Stack—Is 8 feet high, making perfect draft and carrying smoke above men.

Cover—Light sheet iron removable cover, suitably braced, covering tank completely and preventing any possibility of water getting in material.

Platforms—Supported with heavy hinged arms, fastened on both sides. The arms are made to swing out of the way in shipping.

Draw offs—Two 2 inch quick opening lever gate valves, connected to special castings, placed one on each side of tank, in centre and independent of each other, 3 inches up from bottom of boiler proper, giving a straight and short opening which can be easily cleaned.

Wheels—Steel wheels, 24 inch x 6 inch front, 36 inch x 6 inch rear, made to cut under tank, so it can be turned in own length.

Axles—Rear axle is special cast steel of I beam construction. Front axle made of heavy iron, reinforced with 6 inch channel iron, securely bolted which permits of large fifth-wheel.

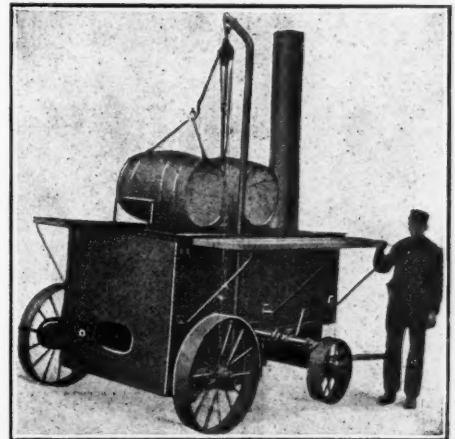
Equipment—Complete with pole, ironed to be drawn by roller, cover, draw-offs, platform brackets, chain hoist and barrel hooks.

Simplex Concrete Mixer.

The Miles Mfg. Co., Jackson, Mich., made the Simplex concrete mixer, which, as its name indicates, was designed after a study of many other mixers to retain the essential and durable elements of a good machine and eliminate everything possible that complicates and increases wear. The Simplex is built of the best material, with framework of steel, only a small amount of wood being used for the housing and platforms. Heavy I-beams are used for side rails. The drum is of heavy gage boiler iron. The mixing drum is set at an angle so that at each revolution the materials are carried about two inches towards the discharge end. The drum is 60 inches long. Water is added at a point 18 inches from the discharge end. On the inside of the drum are steel blades 1¼ inches high. The gearing is simple, the drum being revolved by a chain which encircles it. The wheels are steel 20 inches diameter front, and rear 28, with 4-inch grooved tires.

A friction clutch controls the entire feed. By throwing a lever, the feed

scraper links. The chains are driven by sprockets mounted on a single 1¼ square shaft. The cam or eccentric proportioning disks are carefully ma-

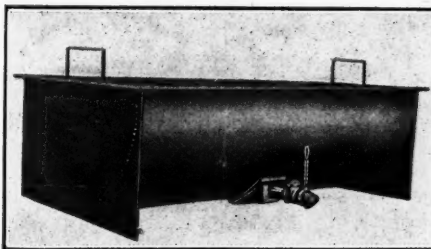


ALBANY TAR TANK.

chined and graduated and provided with a locking device. There are no agitators in the hoppers and no pockets in the feeding device. The sand and stone is struck off at the outlets of the hopper by steel brushes.

The capacity of the Simplex is from one to ten cubic yards per hour. The increasing capacity on very heavy work the base of the rear wheels can be raised an inch or two above the level of the front wheels, thereby securing assistance of gravity and increasing output with less power. The weight of the machine complete on trucks without power is 1,600 pounds; complete with 3 horse power gasoline engine about 2,000 pounds.

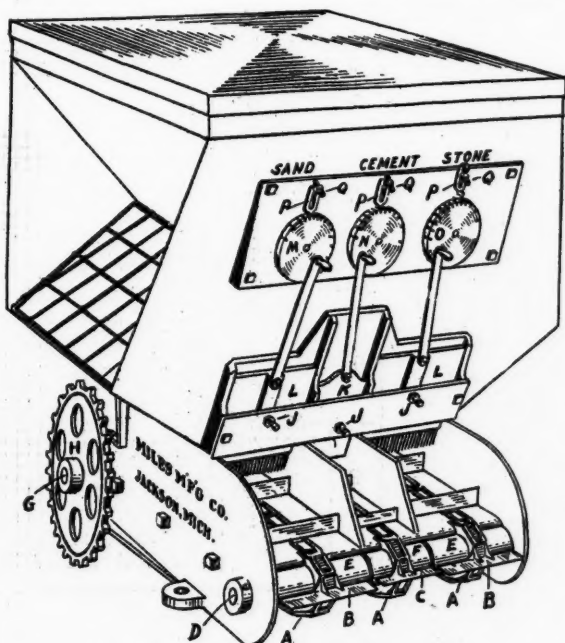
The "Jackson," "Ideal" and "Novo" gasoline engines used on Simplex Mixers cool with one-half pail of water, which is carried in a water jacket surrounding the cylinder and extending above, with an opening at top for filling. The jacket can be drained or filled at a moment's notice, but it will not be damaged if water is allowed to freeze solid.



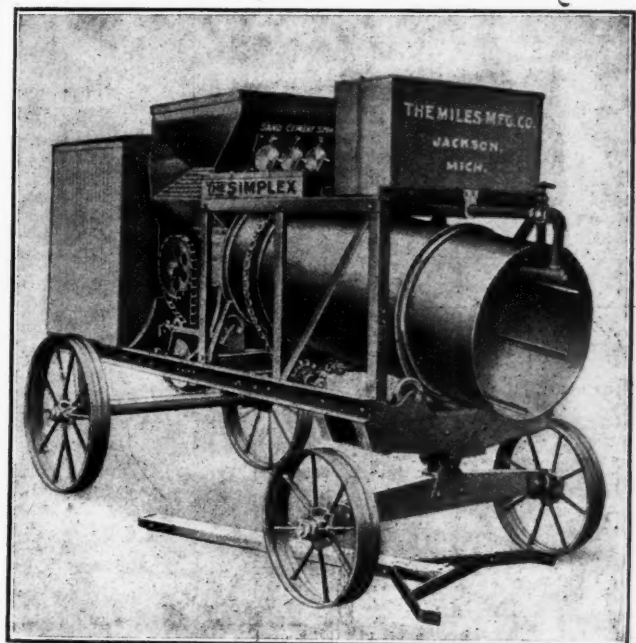
BOILER SHOWING DRAIN-OFF.

of all three materials is stopped but the drum continues to revolve. The end of the drum is entirely open, making it easy to clean with a scraper.

Cement, sand and stone are delivered into the drum by a three-compartment hopper. The feed is controlled by an individual clutch. The materials are conveyed into the mixing drum by three heavy conveyor chains with



AUTOMATIC FEEDING HOPPERS.

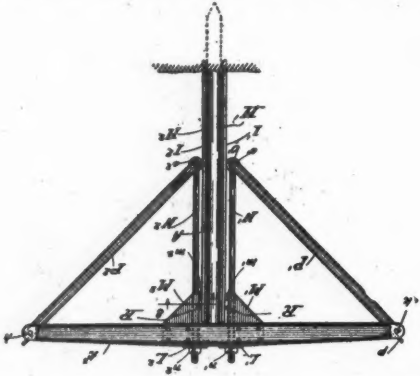


CONCRETE MIXER—100 CUBIC YARD CAPACITY DAILY.

PATENT CLAIMS

1,047,987. METHOD OF CONSTRUCTING WALLS OF CONCRETE. Isham Randolph, Riverside, Ill. Serial No. 537,518.

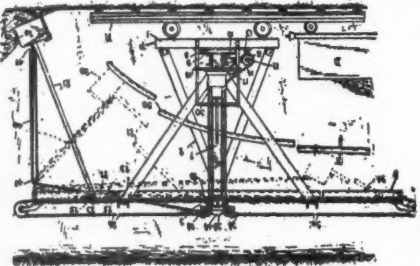
In a concrete wall, the combination with a series of concrete piles located in alignment at predetermined distances apart, of concrete panels intermediate of and united to adjacent



piles, a plurality of concrete anchoring piles in planes at right angles but spaced apart from the plane of the wall, and reinforced concrete tie beams connecting the wall with the anchoring piles.

1,047,804. EXCAVATOR. Roy R. Hatchett, Los Angeles, Cal. Serial No. 673,415.

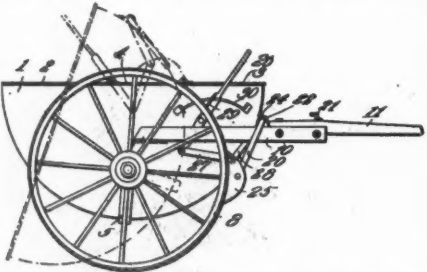
In an excavator of the type described, the combination with a support having a turn table, a skeleton framework on the support, and aligned bearings at the center of said turn table and in the top of said framework; of a skeleton frame having stub shafts journaled in said bearings, means for swinging the frame



on its shafts, a boom extending through said frame and having a track, a carriage thereon, means for moving it to and fro, a bucket, a pole connecting the carriage and bucket, means for raising and lowering the latter, and bucket-guides extending through said skeleton frame and upon which the bucket rides as it passes to and fro.

1,047,009. GARBAGE-CART. George F. Edgington, Jeffersonville, Ind. Serial No. 584,292.

A dumping cart embodying a dropped axle, wheels on the ends thereof, a body mounted on the axle, the axle having upstanding ears adjacent each wheel, hounds arranged at and spaced from the sides of the body and connected to the said ears, a beam journaled on the front end of the body and having its ends depending over the hounds, the beam being



seatable on the hounds to support the body in load receiving position, thills connected to the hounds, cross-bars connected to the ends of the thills, a spring pressed latch carried by the cross-bars and adapted to lock the body in load receiving position, shoes carried by the ends of the beam for engaging the wheels, and mean carried by one side of the body for swinging the beam.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago. A number of good municipal contracts have been awarded. Quotations: 4-inch 31; 6 to 12-inch, \$29; 16-inch and up, \$28. Birmingham. Most of large orders have been completed, but foundries are in full operation. Makers expect a good run of orders in the near future. Quotations: 4-inch, \$24.50; 6-inch, \$22.50. San Francisco. Projects are contemplated from which a very satisfactory tonnage is expected early in the year. Quotations: 4-inch, \$38.50; 6 to 10-inch, \$36.50; layer sizes, \$36. New York. The general demand is quiet as usual at this time. Quotations: 6-inch, car loads, \$25 to \$27.

Lead.—Prices are slightly higher owing to better inquiry and fairly good business. Quotations: New York, 4.35c; St. Louis, 4.20c.

City Planning.—J. W. Howard, Consulting Engineer, 1 Broadway, New York City, in sending to his friends the little calendar for pocket or purse which he has been publishing for a number of years, encloses a card announcing that in addition to his work on roads, streets and pavements he will give attention to city planning. As city planning consists largely in architecture and street building glorified with a new name, it seems highly fitting that a consulting engineer on pavements should be called in for such work.

Clay Products.—The Clay Products Exposition Co., 815 Chamber of Commerce, Chicago, Ill., have sent a notice to manufacturers of clay products stating that the organization has practically completed their plans for the show in the Coliseum, Chicago, February 26 to March 8. It is now up to the manufacturers to make the show a success by preparing their individual exhibits.

(Continued on page 110)

MUNICIPAL INDEX

(Continued from page 105).

sociation. By Charlotte Rumbold. 4 pp., The Playground, January. 25 cts.

Administration of Dance Halls. Addresses to Playground and Recreation Association. 8 pp., The Playground, December. 25 cts.

Plan for Extended Use of School Buildings. 8 pp., The Playground, January. 25 cts.

Housing of the Working Classes in Rural Districts. By L. Caplen. Illustrated, 1½ pp., Surveyor, December 6. 40 cts.

Housing at the Los Angeles Conference. By John Ihlder. 8 pp., National Municipal Review, January. \$1.25.

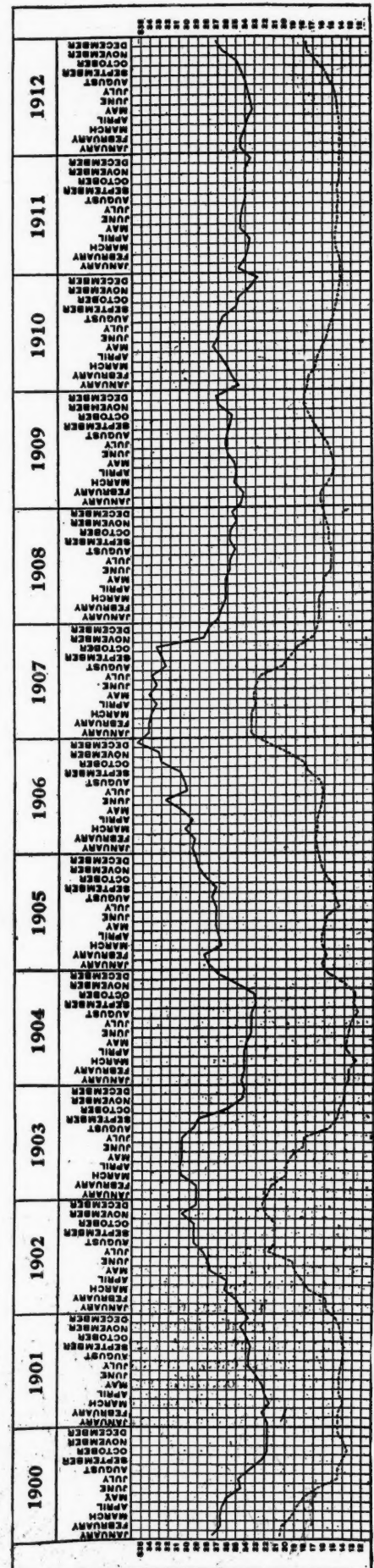
Report on Philadelphia Housing Conference. 9 pp., City Club Bulletin, Chicago, December 20.

Construction Work During 1912. Municipal Tabular data. 2½ pp., Municipal Journal, January 2. 10 cts.

Forecast of Work to be Done in 1913. 2½ pp., Municipal Journal, January 2. 10 cts.

Apparatus Purchased by Municipalities in 1912. Tabular Data. ½ p., Municipal Journal, January 2. 10 cts.

Forecast of Purchases in 1913. Tabular Data. ½ p., Municipal Journal, January 2. 10 cts.



RECORD OF CAST IRON PIPE PRICES FOR 13 YEARS.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Ohio	New London	Noon, Jan. 20	Imp. 3 streets	R. F. Bracy, Vil. Clerk.
Cal.	Oakland	noon, Jan. 20	Granite and basalt block asphalt, oil macadam pavements, curbing and gutters	F. R. Thompson, Clerk.
Ia.	Council Bluffs	5 p.m., Jan. 20	Artificial stone sidewalks, 66,000 sq. ft.	C. J. Duff, City Clerk.
Ohio	Canton	Jan. 21	Vitrified block on 9 sts.	W. S. Ruff, Director.
Fla.	Clearwater	Jan. 21	Vitrified brick and various kinds of asphalt and bitumen.	R. T. Daniels, Town Clerk.
N. Y.	New York	11 a.m., Jan. 21	Brick pavements about reservoir.	Chas. Strauss, Pr. Water Bd.
Ohio	Cleveland	Jan. 22	Brick, 90,000 sq. yds., on number of sts.	W. J. Springborn, Dir. P. S.
Ill.	Rockford	1:30 p.m., Jan. 22	Brick pavements, 14,000 yds. on 2 sts.	W. W. Bennett, Pr. B. L. I.
Fla.	St. Petersburg	Jan. 23	Filling in and constrn. roadway.	W. F. Divine, C. Clerk.
Fla.	Bradentown	Jan. 23	Concrete with bituminous flush coat, asphaltic, concrete or macadam, 37,000 sq. yds.	O. A. Spencer, Comr. P. W.
Ind.	Danville	Noon, Jan. 25	Various roads	L. W. Roberts, County Aud.
Ohio	Wapakoneta	10 a.m., Jan. 25	Kiwan Pike in Goshen Township	A. E. Schaffer, Co. Aud.
Can.	Quebec, Ont.	4 p.m., Jan. 27	Grading 155 miles, macadam, concrete or bit. macadam, 30 miles; culverts and bridges	B. Michaud, Deputy Minister.
Ohio	Niles	noon, Jan. 27	Curbing and paving South Main st.	Director of Service.
Ohio	New Concord	Noon, Jan. 29	Curbing and paving Main st.	W. G. McKinney, Vil. Clerk.
S. C.	Charleston	7 p.m., Jan. 30	Concrete and stone curbing, concrete and flag walks.	J. H. Dingle, City Engr.
Wash.	Vanc. Barracks	11 a.m., Jan. 30	Macadam roads, 1,350 lin. ft.	Constrn. Q. M.
N. Y.	Ilion	Feb. 1	Brick or bituminous paving, 25,000 yds.	J. D. Ringwood, Engr.
Ill.	Rockford	About Feb. 1	20,000 sq. yds. block paving	W. Bennett, Mayor.
Ind.	Cannelton	Feb. 3	Constrn. 18.2 miles of rock roads	County Comrs.
Ind.	Greencastle	11 a.m., Feb. 3	Four macadam roads, 3 1/4 miles	C. L. Airhart, Co. Aud.
Ohio	Ravenna	Noon, Feb. 3	Draining, curbing and paving several sts.	W. H. Linton, Dir.
Fla.	Sarasota	Feb. 4	Tile and monolithic concrete sidewalks	J. W. Phulip, City Engr.
Wash.	Vanc. Barracks	11 a.m., Feb. 4	Walks, curbs, gutters	Constrn. Q. M.
Ind.	Vincennes	2 p.m., Feb. 4	Six miles gravel, 4 jobs	J. T. Scott, Co. Aud.
Pa.	Turtle Creek	Feb. 6	Vitrified blocks, 32,000 yds.; brick, 17,000 yds.; slag, 13,000 yds.; concrete curbs, 22,000 ft.	Boro. Council; Harrop, Hopkins & Taylor, Pittsburgh.
Mich.	Manistique	2 p.m., Feb. 6	2 1/4 miles road	County Clerk.
Fla.	Jacksonville	Feb. 10	Pavement on concrete base, 98,800 sq. yds.	L. D. Smoot, Chief Engr.
Ind.	Logansport	Apr. 9	Macadam roads	J. E. Wallace, Co. Aud.
SEWERAGE				
Mass.	New Bedford	Jan. 18	Constrn. concrete substructure for screen station	W. F. Williams, City Engr.
Canada	Edmonton, Alta.	Jan. 18	Constrn. trunk sewer	City Comrs.
N. J.	Trenton	9:30 p.m., Jan. 18	Drain No. 32, in Market, Mill and Fair sts.	F. Thompson, City Clerk.
Cal.	Los Angeles	2 p.m., Jan. 20	Sewer for County Hospital	H. J. Leland, Clerk.
Cal.	Oakland	2 p.m., Jan. 20	8-in. sewers and culverts	F. R. Thompson, Clerk.
Ohio	Cleveland	Noon, Jan. 20	Sewers in number of sts. at Shaker Heights	C. A. Palmer, Vil. Clerk.
Cal.	Ontario	7 p.m., Jan. 20	Outfall sewer	R. C. Brackenridge, City Clk.
Texas	Houston	Noon, Jan. 20	4,600 ft. 4 to 6-ft. concrete sewers, &c.	H. B. Rice, Mayor.
Wis.	New London	8 p.m., Jan. 21	Sewer	City Clerk.
Fla.	Clearwater	Jan. 21	Storm sewers	R. T. Daniels, Town Clerk.
Md.	Baltimore	11 a.m., Jan. 22	Sanitary lateral sewers, Dist. No. 6, Contract 107	Board of Awards.
Ind.	Fort Wayne	7:30 p.m., Jan. 23	Sewers Nos. 215-219	F. T. Bennoy, Ch. Bd. Pub. W.
Mo.	Richmond	Jan. 25	Clay pipe sewers, cost \$20,000	Chas. Brown, City Clerk.
Pa.	Somerset	Jan. 29	Sewage disposal plant at County Farm	County Comrs.
S. C.	Charleston	7 p.m., Jan. 30	Furn. terra cotta pipe, laying pipe for year	J. H. Dingle, City Engr.
Alta.	Edmonton	Jan. 29	Trunk sewer extension, Contracts 3-9	A. J. Latonell, City Engr.
W. Va.	Huntington	1:30 p.m., Jan. 30	12 and 15-in. lateral sewers	L. A. Pollock, Comr.
Sask.	Regina	Noon, Jan. 31	Galvanized iron sheeting, 37,700 sq. ft.	J. M. MacKay, Chief Engr.
Ind.	South Bend	Feb. 1	2 1/2 miles trunk sewers, &c.	A. P. Pearley, Clerk.
N. J.	Newark	Feb. 4	Sec. No. 7 Passaic Valley sewer	Passaic Val. Sewerage Com.
Ohio	Troy	Noon, Feb. 4	Sanitary sewer, 6 miles	G. B. Hatfield, Dir.
WATER SUPPLY				
Ill.	Chicago	11 a.m., Jan. 18	Packing for pumping stations	L. E. McGann, Comr.
Ill.	Chicago	11 a.m., Jan. 20	75 1/2-in., 300 3/4-in., 200 1 1/2-in., 200 2-in. disc. wat. meters	L. E. McGann, Comr.
Ohio	St. Clairsville	Jan. 20	One mile water main, hydrant valves, &c.	County Auditor.
Man.	Winnipeg	11 a.m., Jan. 20	Quantity of brass goods	M. Peterson, Sec.
Ohio	Cleveland	Noon, Jan. 20	6-in. water mains at Shaker Heights	C. A. Palmer, Vil. Clerk.
Ohio	Shaker Heights	Jan. 20	Furn. and laying 6-in. mains in various sts.	C. A. Palmer, Vil. Clerk.
Neb.	Broken Bow	Jan. 21	60-h-p. oil engine	A. J. Antwerp, City Engr.
S. C.	Rockhill	3 p.m., Jan. 21	Pumping sta., filter plant, reservoir, 5 miles pipe line, &c.	Pub. Works Com.
N. Y.	Brockport	8 p.m., Jan. 21	5,000 tons 6 to 10-in. c-i. pipe, pumping station well, intake, reservoir	L. B. Shay, Vil. Clerk.
Minn.	Boyd	7:30 p.m., Jan. 21	Addition to building, 750 ft. 6-in. c-i. main, hydrants, &c.	A. J. Matthe, Vil. Clerk.
Ohio	Youngstown	Noon, Jan. 23	About 3,000 meters, corporation cocks and curb boxes	W. H. McMillin, Clerk.
Mass.	Boston	Noon, Jan. 27	Furn. 3,165 tons c-i. pipe, hyd'ts, gates, caps, reducers, &c.	E. J. Mullen, Supt. of Sup.
Can.	Victoria	Jan. 27	Brass goods, hydrants, valves, lead, &c.	W. Galt, Purch. Agent.
Col.	Fountain	Jan. 27	Waterworks	City Clerk.
Ohio	Stubensville	Jan. 28	6,000,000 gal. vertical pumping engine	Jas. Gavin, Dir. Pub. Ser.
S. D.	Yankton	Jan. 29	C-i. and wood water pipe	Jno. W. Summers, City. Aud.
Sask.	Regina	Jan. 29	Turbine pump, 5,000,000 gals. capacity, and engine	A. W. Poole.
Texas	Dallas	Jan. 30	Pumping station	J. M. Bassett, Chief Engr.
S. C.	Charleston	7 p.m., Jan. 30	Iron castings	J. H. Dingle, City Engr.
Ont.	Port Arthur	Feb. 3	46,000 ft. 24-in. steel pipe, 6,000 ft. 12-in.	J. J. Hackney, Comr.
Neb.	Grand Island	8 p.m., Feb. 5	One 10, two 12-in. wells, 100 ft. deep	J. H. Miller, Comr.
Miss.	Yazoo City	3 p.m., Feb. 15	Water meters	J. S. Butler, Supt.
Ohio	Willoughby	Feb. 22	Mechanical filters, 1,000,000 gals. capacity	P. P. Saxton, Clk. Bd. P. Affrs.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
LIGHTING AND POWER				
W. Va.	Charleston	3 p.m., Jan. 20	Lighting streets for 5 years	J. F. Bedell, Sec.
N. J.	Jersey City	2 p.m., Jan. 20	Maintaining 1,800 arc lights	E. B. See, Clerk.
Cal.	Sacramento	Jan. 21	Lighting fixtures in Court House	E. F. Pfund, Co. Clerk.
Minn.	Boyd	7.30 p.m., Jan. 21	Oil engine, generator, storage bat., switchb'd, pole line	A. J. Matke, Vil. Clerk.
Neb.	Lincoln	Noon, Jan. 23	Water tube boiler, 500 h.-p. two chain grate stokers	R. C. Ozman, City Clerk.
Can.	Winnipeg	Jan. 24	Three 2,700 k.w. transformers	Board of Control.
Kan.	Kingman	Jan. 25	Electric light, cost, \$25,000	Warley & Black, Engrs., Reliance Bldg., Kan. City, Mo.
Va.	Norfolk	1 p.m., Jan. 25	Four electrically driven centrifugal sewer pumps, switchboards, &c.	W. T. Brooke, City Engr.
Can.	Victoria	Jan. 27	Cluster light globes, tungsten lamps and carbons	W. Galt, Purch. Agent.
Cal.	Los Angeles	Jan. 31	Steel transmission towers (230)	Bd. of Pub. Works.
Wis.	Kilbourne	Feb. 1	Equipment for municipal electric light plant	D. G. Howey, Supt.
D. C.	Washington	Feb. 4	Motor and blower, 7 motors	Navy Dept.
Cal.	Redlands	Feb. 5	Electric power plant, 600 h.-p., steam, gasoline or oil	R. W. Thomas, City Clerk.
Fla.	St. Petersburg	Feb. 6	Purchas. gas franchise	W. F. Divine, City Clerk.
New Zea.	Wellington	Feb. 6	Weir feed pump, wrought steel piping, c.-i. fittings, &c.	Town Clerk.
Sask.	Moose Jaw	Noon, Feb. 10	Steam turbine and generator, 1,500 kw.	10131 Bur. of Mfgs., Wash, D.C.
La.	New Orleans	Noon, Feb. 18	Transmission line and power cables for drainage system	A. W. Mayberry, Ch. Comrs.
Chile	Santiago	Sept. 10	Illuminating plant for port works	F. S. Shields, Sec. Comision de Puertos.
FIRE EQUIPMENT				
Cal.	Selma	Jan. 20	Motor combination wagon	City Clerk.
Pa.	Schuylkill Haven	Noon, Jan. 20	Fire extinguishers and chemical engines for hospital	J. E. Kantner, Co. Compt.
Kan.	Fort Scott	5 p.m., Jan. 21	500 ft. 2 1/2-in. fire hose	G. N. Sanford, City Clerk.
Ky.	Lexington	Jan. 21	Fire station	City Clerk.
Ind.	Muncie	Jan. 21	Central fire station	City Clerk.
N. J.	Montclair	8 p.m., Jan. 27	System of alarm lights and a cut-off, also time-door springs or hinges	H. Trippett, Town Clerk.
Ohio	Niles	noon, Jan. 27	Fire Department building	Dir. Public Service.
Can.	Calgary	Jan. 27	Motor service truck, motor hose wagon, motor chemical and salvage car; also fire-alarm equipment	City Comrs.
Ohio	Canton	Noon, Feb. 4	Reconstrn. chemical wagon into auto.	G. F. Koehler, Dir. P. S.
BRIDGES				
Ohio	Toledo	Noon, Jan. 20	Bridge over Maumee River	J. R. Cowell, Dir. Pub. Serv.
Ohio	Springfield	2 p.m., Jan. 25	Bridge	Fred Hirtzinger, Comr.
Md.	Annapolis	11 a.m., Jan. 25	Reinforced concrete bridge	H.R. Stamford, Navy Dpt., Wash
Cal.	Yosemite	2 p.m., Feb. 1	Four reinforced concrete bridges	L. C. Laylin, Asst. Sec. of Int.
MISCELLANEOUS				
Pa.	Washington	Jan. 20	20-ton incinerating plant	Jno. Griffiths, Boro. Pres.
La.	New Orleans	7.30 p.m., Jan. 22	Wharf	W. A. Kernaghan, Pr. Comrs.
N. J.	Jersey City	Jan. 23	Asphaltic road bind, 50,000 gals.; 100,000 gals. non-asphaltic road oil, 5,000 gals. gasoline, 7,000 ft. water-proof wire, 1,000 arc light globes, &c.	J. C. Sweeney, Clerk.
Va.	Petersburg	5 p.m., Jan. 24	One-story brick jail	R. A. Munden, Architect.
Ont.	Kincardine	Jan. 27	Center pier for bridge	P. A. Malcomson, Co. Clerk.
Texas	Dallas	2 p.m., Jan. 31	Municipal building	J. B. Winslett, City Sec.
N. Y.	New York	Feb. 3	Concrete and stone sea wall at Ellis Island	Wm. Williams, Comr.
Tex.	Beaumont	10 a.m., Feb. 4	Equipment for municipal abattoir	J. G. Sutton, City Sec.
Mich.	Detroit	Feb. 4	Incinerating plant, 100 tons capacity	J. J. Haarer, Comr.
Mont.	Chinook	Feb. 20	Fireproof court house, cost \$70,000	County Comrs.

STREETS AND ROADS

Chula Vista, Cal.—Board of Trustees have authorized paving of National ave., "E" st. and Third ave.; estimated cost, \$25,000.

Pasadena, Cal.—Resolution of intention for improvement of Bradford st. is being considered. Also similar resolution for Kirkwood ave.

San Jose, Cal.—City Engineer has been instructed to prepare plans for small portable plant for mixing asphaltum for street repair work.

Suisun, Cal.—Large bond issue for construction of complete system of good roads will probably be proposition for voters of Solano County to vote on in near future. Supervisors are seriously considering the matter. Amount necessary will be more than \$1,000,000. Plans cannot be definitely determined until route for state highway is settled upon, as county's roads will be feeders to it.

Ventura, Cal.—County Bd. Supervisors has authorized surveys made for about 140 miles of highways.

Bridgeport, Conn.—Petition has been received for appropriation of \$3,000 for macadamizing of Madison ave., from North ave. to Federal st.

Terryville, Conn.—The Highway Commissioner's office has rejected all bids received for proposed improvements of state highway from point on Park st. in Bristol to vicinity of Plymouth-Bristol town line. This section is stretch of roadway on Hartford-Waterbury trunk line and has been trying piece of road for several years. Announcement is made that further changes are contemplated and it is question whether improvements will be completed before next fall.

Miami, Fla.—At meeting of County Commissioners all bids for purchase of road bonds were rejected. Bidders as a rule did not conform to rules govern-

ing bids. Bonds will be readvertised, to be opened in thirty days.

Pensacola, Fla.—Session of Board of County Commissioners has been held for purpose of receiving report of proposed new road in northwestern section of county, which will form connecting link with several important highways now existing. Report, which was adopted by board, recommended that road begin at intersection of county road, which stops at Herron's bridge and runs thence to point known as Cummin's point on Perdido Bay. This road will connect with road to Lillian, Ala.

Sarasota, Fla.—City will receive bids until Feb. 4 for construction of concrete tile and sheet sidewalks. Out of town bidders would be appreciated. John W. Philip, City Engineer.

Macon, Ga.—Macon will have new combination street sprinkler and sweeping machine soon, order having been placed some time ago for new machine. Machine is similar to those now in use in Germany and is of German patent. It has capacity of sprinkling and sweeping 45,000 sq. yds. in eight hours. Addition of motor-drawn truck for removing dirt from pavement was also ordered.

Waycross, Ga.—Up to date 58,700 sq. yds. of sidewalk paving has been done in Waycross under city contract calling for 60,000 sq. yds. Additional contracts for approximately 5,000 sq. yds. of paving have recently been authorized by Council and if any of pending petitions are granted this amount will be materially increased.

Cannelton, Ind.—Bond issue of \$73,000 has been voted for construction of 18.2 miles of rock roads. Bids will be received until Feb. 3.

Indianapolis, Ind.—Resolution to open Parkway boulevard from Twenty-eighth to Thirtieth sts. to width of 25 ft. has been adopted by Board of Public Works. Board of Park Commissioners will give strip of 25 ft. wide along east side of

Riverside park, making thoroughfare total width of 50 ft. It is proposed to improve Parkway boulevard, but it was found that thoroughfare from Twenty-eighth to Thirtieth sts. had never been opened.

Noblesville, Ind.—Opening of College ave., from Indianapolis through part of Hamilton County has been authorized. Road runs south from Mattsville pike past Pleasant View and connects with another gravel road on line between Marion and Hamilton counties. It is thought that it will give great relief to congested travel on range line road from Indianapolis to Carmel, and to Mill Spring road, a mile west of proposed road. It will make direct line from Pleasant View and Carmel to Broad Ripple and Indianapolis.

Lexington, Ky.—Ordinance providing for sale of South Limestone st. improvement bonds in sum of \$12,650 has been adopted.

Lexington, Ky.—Ordinance directing Mayor to issue and sell South Limestone Street State University Series improvement bonds in sum of \$6,333.81 has been adopted.

Louisville, Ky.—Mr. and Mrs. Frank Fehr have given Board of Park Commissioners nine acres of land valued at \$2,000 an acre, to be added to Cherokee Park. Agreement was made, however, between Park Board and donors, whereby Park Board will build road over Bridge No. 3, to intersect McFerran-Seelbach road, soon to be constructed, thus giving exit from Cherokee Park on northeast section. Stretch of road is one-third of mile long and will cost between \$4,000 and \$5,000.

Topeka, Kan.—Petition has been received for grading, paving and curbing Arch st.

Rockville, Md.—Preparations are in progress for beginning work on construction of pike from Woodmont to of Glen Echo, distance of about three

miles, and from Cohasset along River road to District of Columbia line, also about three miles in length. Chief Engineer Shirley of State Roads Commission is preparing specifications, and as soon as they are received by county commissioners bids will be advertised for. It is estimated that it will require about \$50,000 to build six miles. One-half of amount will be raised by bond issue, authorized by act of the legislature of 1910, and other half will be contributed by state out of state aid road fund.

Augusta, Me.—Bill is being prepared providing for State Highway Commission, a highway engineer and two classes of roads, state roads and state aid roads. State roads are to be laid out and built under supervision of State Highway Commission and will correspond to present trunk line roads, money for construction to be apportioned between state and municipality. State aid roads are of local importance and will be built in about same manner as now, under supervision of State Highway Department.

Haverhill, Mass.—Extension of permanent improvements of streets is being considered.

Lynn, Mass.—Mayor Newhall recommends paying of large number of streets and laying of many sidewalks.

Marlboro, Mass.—Mayor Gleason recommends that Bolton st. should be built as laid out by County Commissioners. He also recommends gravel and oil for top coats for such of the streets as are not too steep in grade.

New Bedford, Mass.—Legislature will be asked to permit city to borrow \$1,500,000 outside debt limit for street improvements and park extensions.

Somerville, Mass.—Mayor Burns recommends the permanent construction of portions of Beacon, Elm and Summer sts. and Broadway and paving of Water st.

Taunton, Mass.—Mayor Fish has recommended extension of highway work.

Hastings, Mich.—So soon as spring arrives, over mile of cement paving will be laid on Jefferson and Green sts., in this city. Common Council has decided to purchase steam roller and complete outfit for graveling streets, and many thoroughfares, now in wretched condition owing to lack of a proper outfit for street construction, will be improved.

Saginaw, Mich.—As result of special election held in Blumfield Township, proposition of issuing \$3,500 bonds for improvement of three highways has been carried by vote of 148 to 37. Roads between Saginaw and Vassar and Saginaw and Reese will be improved this coming summer.

Duluth, Minn.—Improvements of various streets have been authorized.

Duluth, Minn.—City engineer has been directed to submit to Council estimate of cost of cutting through Superior st. from Eighth ave. west to Fourteenth ave. west.

Duluth, Minn.—Contracts will shortly be awarded for street improvements. Estimates as follows: Seventeenth ave. E., from Fourth to Sixth sts. Alternate bids on bituminous concrete, macadam concrete and asphalt, estimated cost, \$6,329 to \$8,021. Twenty-second ave. E., from Third to Sixth sts.: on concrete, bituminous concrete and asphalt; estimated cost, \$4,167 to \$5,008. Twenty-third ave. W., Michigan st. to Piedmont ave.: on brick, with granite curb, from Michigan to Fourth, and rough stone gutter with macadam from Fourth to Piedmont ave.; estimated cost, \$49,652; also substituting sandstone for brick, \$49,916. Princeton ave., from Fifth st. to Ontario st., with gravel, cement curb and gutter; cost, \$26,764. Seventh st., from 4th ave. W. to Chester Park: Alternate bids to be on macadam; cost, \$87,293, and gravel, \$56,642; and Vernon st., from Grand Forks ave. to Bryant's Addition: Alternate bids on creosote blocks, estimated, \$24,449; brick, \$24,022, and concrete, \$16,853. John Wilson is City Engr.

Hibbing, Minn.—Judge Martin Hughes has made final order necessary to construction of new judicial road from Keewatin to Goodlands, pending for past year. It will be about 16 miles long and will make tributary to Hibbing and Keewatin some excellent farming country. Towns of Stuntz and Nashauk will build section of road, the town of Greenway and St. Louis County a portion, and the town of Goodlands and St. Louis County a portion. The road is located for the greater part of distance on line between Itasca and St. Louis counties.

St. Paul, Minn.—Construction of paving plant to cost about \$40,000 is being considered. Paving of University ave. with creosoted block is said to be contemplated by city; estimated cost about \$250,000.

Belvidere, N. J.—Appropriation of \$15,000 has been made for making macadam repairs.

Irvington, N. J.—Ordinances have been passed for improvement of various streets. David H. Greene is Mayor.

Jersey City, N. J.—County Supervisor James F. O'Mealia has recommended the rebuilding of Harrison Turnpike and the repaving of part of Passaic River road.

Newark, N. J.—In order to preserve one fine boulevard between Newark and Orange hills, Park ave. is to be transformed into parkway, according to ordinance just passed by Essex County Park Commission.

Newark, N. J.—Mayor Haussling and Board of Works have been notified by secretary of City Plan Commission that commission had recorded its approval of proposal to construct new street running approximately from intersection of Broad st. and Park pl. to Market Street Station of the Pennsylvania Railroad.

Trenton, N. J.—In order to save money for city and taxpayers and to secure better streets, City Engineer of Streets Abram Swan, Jr., has adopted new method of petitioning for new paving. Under it, petitioners are requested to express kind of pavement they desire, but to leave ultimate decision of paving material used to discretion of Street Department. Preliminary list of street improvements, which have already been petitioned for, has been prepared. Improvements comprehend total of about 75,000 square yards of pavement. List of streets to be paved, material called for, and number of square yards estimated, follows:

Ashmore ave. (Cummings to Anderson), sheet asphalt, 3,150; Asbury st. (Ferry to Steamboat), albertine, 1,800; Atterbury ave. (State to Riverside), material not stated, 2,900; Division st. (Roebbling to Broad), bituminous concrete or asphalt, 8,625; Grand st. (Cass to Liberty), sheet asphalt, 6,000; Hamilton ave. (Chambers to Olden), material not stated, 9,850; Hill's alley (Federal to Cass), concrete, 1,580; Lamberton st. (Market to P. R.), material not stated, 3,700; Lamberton st. (Ferry to Cemetery), bituminous concrete or asphalt, 25,000; Lamberton st. (Market to Factory), bituminous concrete or asphalt, 4,444; Monmouth st. (State to Clinton), sheet asphalt, 4,450; Sherman ave. (Clinton to Cortlandt), vitrified brick, 4,440.

Woodbury, N. J.—Appropriation of \$1,700 has been made for improvement of streets.

Auburn, N. Y.—County Superintendent of Highways J. Charles Dayton, discussing plans for county highways this year has called attention to extensive macadam roads town superintendents are planning to build to connect with proposed and existing state thoroughfares. Sennett will have half a mile of macadam on Soule Cemetery road, beginning near high railroad bridge and running south. Another half-mile stretch will be extended along Onondaga county line. Ledyard will build three miles to connect Sherwood with Aurora. Surveys have been made for thoroughfare from Union Springs to Auburn and for another from Cato to Victory.

Herkimer, N. Y.—Proposed paving of North Bellinger st. is being discussed by Village Trustees.

Newburgh, N. Y.—Mayor Corwin recommends adoption of definite plan of street improvement. He also recommends improvement of following streets: Mill st., Broadway, Grand st. and North Liberty sts.

New York City, N. Y.—Board of Estimate has authorized issue of corporate stock to extent of \$3,000,000 for repaving of streets, distributed as follows: Manhattan, \$1,000,000; Brooklyn, \$1,000,000; the Bronx, \$350,000; Queens, \$350,000; Richmond, \$300,000. The proposal to widen roadway of Central Park West, between Columbus Circle and Cathedral Parkway, seven feet, by taking this much from easterly sidewalk, has also been authorized.

New York City, N. Y.—By authorizing extension of Seventh ave. from Greenwich ave. to Carmine st. and widening of Varick st. from Carmine to Franklin and its extension to West Broadway, Board of Estimate has taken important step toward preparing for construction of new subway system.

New York City, N. Y.—Board of Estimate has authorized issue of \$3,000,000 in corporate stock for repaving streets and avenues in city. Amount to be appropriated among various boroughs as follows: Manhattan, \$1,000,000; Brooklyn, \$1,000,000; the Bronx, \$350,000; Queens, \$350,000, and Richmond, \$300,000.

New York City, N. Y.—Board of Estimate has voted to widen roadway of Central Park West between Columbus Circle and Cathedral Parkway seven feet by taking this much from easterly sidewalk.

Port Jervis, N. Y.—By vote of eight to seven, Board of Freeholders of Sussex County has voted to reject all bids for building of proposed improved road between Newton and Branchville. Five bids were received, all being above amount of estimate made by County Engineer Konkle. Following rejection of bids, motion was passed ordering Director to return all bids and certified checks to bidders. Bids received and amounts of each were as follows: Cotter & Bergen, Echo Lake, type B, \$74,281.67; type C, \$67,969.55. Allen Engineering & Construction Co., Netcong, type B, \$84,515; type C, \$81,359.10. Salmon Brothers, Hackettstown, type B, \$84,498.26; type C, \$75,030.08; M. Irving Demarest, Sewaren, \$74,403.37; type C, \$67,039.23. E. C. Humphreys & Co., Hackensack, type B, \$72,248.50; type C, \$66,988.40.

Rome, N. Y.—Plans have been approved for connecting links in North and South James sts. and Mill st. State Engineer will advertise for bids.

Utica, N. Y.—Petition to pave Morris st. from Rutgers to South and resolution to resurface Elm st. from Eagle to West Shore Railroad, have been referred to paving committee.

Winston-Salem, N. C.—The two miles of highway between this city and High Point will be filled in by Board of County Commissioners.

Winston-Salem, N. C.—In order that Forsyth, if possible, may be connected by macadam road with Guilford County Board of County Commissioners has instructed County Engineer Spoon to make estimates of cost of building short links connecting Forsyth County highways with macadam road in Guilford County to Oak Ridge, to Colfax and to High Point.

Bellefontaine, O.—Council at West Liberty has awarded to Weil, Roth & Co., of Cincinnati, the \$16,500 of street paving bonds. Spitzer & Co., of Toledo, were only other bidders.

Cincinnati, O.—Before County Commissioners estimate for improvement of four miles of Mill road has been submitted by County Engineer Cowen, who placed cost at approximately \$21,683.50. Engineer Cowen also submitted estimated cost of improvement of Springfield road in Colerain Township, between Blue Rock and Colerain pikes, at \$16,367.32.

Columbus, O.—Ohio will be first of states to adopt general plan for improvement of its public highways, treating all sections of state alike and having all preliminary steps taken in advance of collection or expenditure of funds. State Highway Commissioner James R. Marker has two plans completed for road improvement in state. One is complete plan of road improvements; roads are to be completed leading to various market centers. Other plan is for roads built with government aid or with special state aid. These plans are not fully developed, but nine such cross-state roads are under consideration.

Columbus, O.—In his annual report to Governor, State Highway Commissioner Marker advocated system of intercounty highways to be built and placed under control of State Highway Department and proposed plan for raising of money for good road purposes. Commissioner's plan contemplates improvement and control by state of 9,000 miles of road in Ohio, with counties exercising same jurisdiction over 80,000 miles of road.

East Youngstown, O.—Resolutions have been adopted covering improvements to number of village streets. Madison and Murray aves., Fifth, Seventh and Eighth sts. will be graded for sidewalk and sewer. Resolution has been adopted to pave Wilson ave., from McVey's Run west to city limits; to sidewalk and sewer Bellevue ave., and Ninth st.

Fostoria, O.—Sidney Spitzer & Co., Toledo, as the best bidder, have been awarded \$64,000 4½ per cent. street improvement bonds authorized by City Council of Fostoria. The Spitzer-Rorick

Co., of Toledo, was the second best bidder. Proceeds of sale will be used in building pavement and making other improvements in the city of Fostoria.

Fredericktown, O.—H. L. Maddocks, 503 Trust Bldg., Newark, O., will prepare plans and specifications for 15,000 sq. yds. of brick pavement.

Youngstown, O.—City Council has adopted ordinance providing for paving of portions of Oak Hill ave. and Ina ave.

Chester, Pa.—Movement is on foot in this city to open Upland st., from Fourteenth to Fifteenth st., and to create new thoroughfare, to be known as Diamond st. New highway will extend from point at opened portion of Upland st. parallel with Fifteenth st. westward one square. Diamond st. will be about 200 ft. south of Fifteenth st. Streets will be paved and sewerage made modern.

Erie, Pa.—Mayor William J. Stern has recommended gradual abolition of grade crossings by building of subways.

Erie, Pa.—Ordinance has been passed for grading, curbing and paving Reed st., Twelfth to Thirteenth sts.

Lebanon, Pa.—Mayor Longenecker has approved of bill requesting City Engineer to report on probable cost of making repairs at Fourteenth and Lehman sts.; also of bill appropriating \$1,000 for repairing South Ninth st.

Mauch Chunk, Pa.—To pay for repairing paved streets in Mauch Chunk by Standard Bitulithic Co., Council has decided to issue bonds to amount of \$3,000.

Philadelphia, Pa.—Councils will be asked to pass ordinance placing Fifteenth st., from South Penn Square to Chestnut st., on city plan for same width of cartway between Market st. and the square.

Seranton, Pa.—Ordinance has been adopted authorizing the grading, paving and curbing of Luzerne st., from Keyser Creek to point in westerly direction about 235 ft. in the Twenty-first Ward. Ellsworth Kelly, City Clerk.

Seranton, Pa.—Ordinance has been adopted providing for laying of 5-ft. flagstone sidewalks on both sides of Wheeler ave., from Vine st. to Myrtle st. Ellsworth Kelly, City Clerk.

Sioux Falls, S. D.—City Engineer F. P. Wilson of Mason City, president of Iowa Association of Cement Users, and one of best posted paving experts in the west, has been invited by city commission to visit Sioux Falls and make talk on paving to property owners of Sioux Falls. It is expected that vast amount of pavement will be put in during 1913.

Nashville, Tenn.—Widening of Seventh ave., between Church st. and Broadway is being discussed.

Baird, Tex.—Commissioners' Court of Callahan County will order election at January term for bond issue for purpose of macadamizing roads in road Precinct No. 1. Election will also be ordered for Precinct No. 2, comprising vicinity of Cross Plains and Cottonwood.

Belton, Tex.—Movement is on foot here to have election ordered in Belton Commissioners' Precinct to determine whether or not bond issue shall be ordered for purpose of road improvement in precinct. There are about 100 miles of country roads leading into Belton.

Conroe, Tex.—Citizens have authorized \$250,000 bond issue for construction of roads in Montgomery County.

Galveston, Tex.—Bids will be advertised for paving south side of Broadway between Twenty-fifth and Thirty-seventh sts., and Thirtieth-seventh st., between Aves. A and B.

Marshall, Tex.—Bids have been received for paving of East Austin st. and opened by City Commission. The bids were from the Dolarway Paving Co. of Texas. Ockander Brothers of Waco, J. A. Gregory of Dallas, and General Construction Co. Contract will be awarded later.

McGregor, Tex.—Many improvements are in sight for McGregor. Several hundred feet of concrete sidewalks and street crossings will soon be built and drainage and graveling of several streets are now in contemplation.

Waco, Tex.—Bond issue of \$100,000 will be voted on for improvement of streets.

Marion, Va.—Citizens are said to have voted \$150,000 bond issue for improvement of highways in Smyth County.

Norfolk, Va.—The Board of Control has made contract with Continental Public Works Co. for paving Eleventh st. on same terms as were set out in contracts for Tenth, Thirteenth, Fourteenth and Fifteenth sts.

Walla Walla, Wash.—City Commissioners have declared their intention to pave with some hard surface pavement, Clinton st., from Isaacs ave. to Whitman st., and Whitman st., from Clinton st. to Division. Includes grading, curbing, draining and paving. Length of improvement about 4,400 ft. long and width 34 ft., containing about 16,500 sq. yds. of paving. Also to pave Division st., from Alder st. to Whitman st., length 1,320 ft., width about 25 ft., containing about 3,650 sq. yds. Plans and specifications will be ready about Feb. 1. W. R. Rehorn, City Engineer.

Neenah, Wis.—Whether city will issue bonds to assist in paying off floating indebtedness of \$95,000 will be decided by special election.

Racine, Wis.—Following street openings have been authorized. Blake ave., St. Patrick to Rapids, \$1,000; Holmes ave., \$300 appropriated for grading transferred to do opening; De Koven to Phillips, \$3,000, of which \$2,500 is available from last year's budget; Kearney ave., \$2,500; Gertrude, \$600; widening Washington ave., \$4,000.

Racine, Wis.—Following is paving improvements decided on: Lake ave. from Second to Sixth, \$1,600; Villa, from Water to Seventh, \$170; Eleventh, from Wisconsin to Center, \$1,600; Seventh from Main to Grand, resurface and oil, \$1,500; Grand, from Seventh to Fourteenth, \$4,300; North Wisconsin, from Dodge to St. Patrick, \$4,800; Marquette, State to Hamilton, \$800; Tenth, Racine to Pearl, \$500; Eleventh, from Center to Racine, \$2,000; Mead, from Sixth to Eighth, \$200; North Wisconsin, from St. Patrick to Gould, \$3,400; Kinzie, from Graham to West Boulevard, \$4,500; Martman Court, no expense; Sixteenth, Junction to Owen, \$900; Boyd ave., Washington to Seventeenth, \$1,200; Quincy ave., Washington to Seventeenth, \$3,000; Asylum, from Washington to West Boulevard, \$200; Seventeenth, from Wisconsin to Holborn, \$3,500; Rapids road, from Douglas to city limits, \$3,000.

Toronto, Ont.—Citizens have voted \$100,000 bonds issue for good roads.

CONTRACTS AWARDED.

Mobile, Ala.—By Board of Revenue and Road Commissioners, to Jett Bros. Contracting Co., of Mobile, to improve two additional miles of Moffat road.

Fresno, Cal.—By city, contract for improvement of Blackstone st., from Belmont to Englewood sts., to Thompson Bros. of that city, at $\frac{1}{2}$ ct. per sq. ft. for grading, \$0.12 $\frac{1}{2}$ for paving, \$0.12 for cement gutter, \$0.30 for cement curb and \$150 for corrugated iron culverts.

Los Angeles, Cal.—For paving as follows: Barber Asphalt Co., for Carondelet st. with asphalt, at \$7.361; San Fernando st., with asphalt, \$8.887, and to D. D. Chapman, for Compton ave., with macadam, \$15.773.

San Diego, Cal.—By city contract for improving Washington, Fifth and Hawk sts. at \$26.755, \$5.442 and \$4.755, respectively, to Ford & Stout, of Los Angeles.

San Jose, Cal.—City Improvement Co. being only bidder, has been awarded contract for improving First st., from Taylor to Rosa, as follows: Paving, 18 cts. per sq. ft.; curbing, 35 cts. per lin. ft.; gutters, 18 cts. per sq. ft.; catch basins, \$37.50 each; 6-in. pipe drains, 9 cts. per ft.

Waterbury, Conn.—To Robert D. Daley Co. of New Haven, contract for 6,000 lineal feet of macadam road construction on Seymour road in town of Woodbridge by Highway Commissioner James H. MacDonald. Contract price is \$1.83 a lineal foot and whole job will amount to \$10,980.

Franklin, Ind.—By Board of Commissioners of Johnson County, to John W. Murphy, Greenwood, Ind., for construction of two gravel roads, at \$5.163 each.

Montpelier, Ind.—To Marion Creek, contract, at \$5.897, for Franklin ave. road, near Montpelier.

Des Moines, Ia.—For paving Euclid ave. with brick, to J. W. Turner Improvement Co. at \$1.59 per sq. yd.

Iowa City, Iowa.—To Barry & Bradley, of Iowa City, contract for paving with brick, curb and gutter work, etc., at \$16.615.

Pikesville, Ky.—To Kelly Bros., of Portsmouth, O., contract by city of Pikesville, for construction of 90,000 sq. yds. of brick pavement at approximately \$100,000.

Lawrence, Mass.—By commissioners of Essex County to Jos. Wagenbach & Son, Lawrence, at \$47.492, for construction of Lawrence and Methuen Boulevard.

Akron, O.—By Board of Control, contracts for paving as follows: Rhodes ave., McAlonan Bros., W. Butchel ave., \$36,376.10; Crosier st. and Cross st., William Lee, 108 West Miller ave., \$17,889.05 and \$17,000.80, respectively; Yale extension, Josiah Wigley, 418 Carmichael ave., at \$5,795.60.

Uhrichsville, O.—To John L. West, of Uhrichsville, contract by that city, for grading, curbing, draining and paving Trenton ave., at \$21,463. Paul R. Murray is City Engineer.

McAlester, Okla.—By City, to McEachin & McEachin at \$7,806.25 for street paving in Second Ward.

Pittsburgh, Pa.—For construction of brick-paved road in Chartiers Township from the 20th Ward, Pittsburgh, to Sheraden, $\frac{3}{4}$ of mile, to John Connelly.

El Paso, Tex.—Bid of \$1.20 per sq. yd. for paving Arizona st., submitted by Southwestern Paving Co., has been referred to Finance Committee.

Galveston, Tex.—For paving new streets to be opened between Avenues A and C from Twenty-fifth to Twenty-eighth st., to P. J. Vautrin, paving to be with vitrified brick at cost of \$29,318.46, which included maintenance guarantee for five years. Mr. Vautrin was also awarded contract for constructing cement sidewalks and concrete curbing at cost of \$5,281.38.

Houston, Tex.—By City of Houston, for creosoted wood block paving, to Creosoted Wood Block Paving Co. of New Orleans, La., amounting to \$75,000, and Hassam paving to Ockander Bros., of Waco, Tex., at \$19,000.

Marshall, Tex.—By city for construction of 12,000 sq. yds. Dolarway paving, to Dolarway Paving Co. of Texas, 571 First Nat'l Bank Bldg., Fort Worth, Tex. Contract was awarded January 7.

Waco, Tex.—By city for construction of 3,000 sq. yds. Dolarway paving, to Dolarway Paving Co. of Texas, 511 First Nat'l Bank Bldg., Fort Worth, Tex. Contract was awarded January 2.

North Yakima, Wash.—By County Commissioners, contract for construction of 4,000 feet of highway to Eschbeach-Bruce Co. at \$4,000.

Seattle, Wash.—To Union Contracting Co., contract by Board of Public Works of Seattle, Wash., for grading and curbing of east one-half of Thirty-sixth ave. W. at \$6,342.

SEWERAGE

San Jose, Cal.—Clerk has been instructed to advertise for 400 ft. of 8-in. iron syphon pipe, to be used in connection with Bassett and Howard st. sewers, at creek crossings.

Nevada City, Cal.—Meeting of City Trustees will be held to consider proposition of submitting bond issue of \$20,000 to the people, for improvements for city sewer system and construction of new City Hall.

Upper Alton, Ill.—Plans are said to be completed for sewer system.

South Bend, Ind.—Petition for sewer on Union st., from its intersection with Sample st., has been filed with Board of Public Works.

Lexington, Ky.—Ordinance providing for issue and sale of city bonds in sum of \$200,000 for sewage purposes has been adopted.

Portland, Me.—For financing sewer construction already planned, including north and east side intercepting sewers, land damages which will be incurred, etc., orders will be introduced in City Council calling for total appropriation of \$135,000.

Hibbing, Minn.—Village Council will receive bids for constructing outlet to sewer south of Brookston.

Fairview, N. J.—Citizens have authorized construction of sewage disposal works.

Secaucus, N. J.—Citizens have voted to construct sewer system in Clarendon section.

Westfield, N. J.—Ordinance has been passed to lay sewer in Central ave., between Myrtle ave. and Park st.

Brooklyn, N. Y.—Preliminary authorization for Classon ave. system of relief sewers has been voted by Board of Estimate. Estimated cost of this system of sewers, made imperative by construction of Fourth ave. subway, is \$2,497,500.

Huntington, L. I., N. Y.—In communication addressed to taxpayers of Huntington committee, which is circulating petition requesting that sewer district be formed, has recommended Imhoff sewage disposal system and states that estimated cost of installing plant and its pipe lines is \$96,000.

Newburgh, N. Y.—At meeting of City Council it was decided to go ahead with Fullerton ave. sewer. Sewer will cost about \$15,700. It will run from Third st. to Gidney ave.

Rochester, N. Y.—Board of Estimate and Apportionment has approved purchase of 15 acres of additional land from L. D. Ely, in Brighton, for \$4,500, land to be used for sewage disposal purposes of Twelfth and Twenty-first Ward sewers. Approval has been given to two ordinances passed by Common Council, one on November 9, 1910, providing for \$500,000 to pay cost and expense of sewage disposal and ordinance passed March 12, 1912, providing for \$1,000,000 for sewage disposal.

Schenectady, N. Y.—Bond issue of \$100,000 for sewers has been awarded to Rhoades & Co., of New York.

Toledo, O.—City Council has approved of ordinance authorizing issue of \$22,000 bonds for sewer to drain marsh in North Toledo.

Troy, O.—Bids will be received at office of G. B. Hatfield, Director of Public Service, until 12 noon, Feb. 4, for construction of sanitary sewer six miles in length. W. B. Freeman, Clerk.

Chester, Pa.—Movement is being considered to secure state aid for sewerage disposal plants. Plan is to have bill presented at this session of Legislature providing that in cases where municipality is ordered by state to construct sewerage disposal plant, state is to bear portion of the expense.

Erie, Pa.—Ordinance has been passed for construction of 8-in. sanitary sewer in Reed st., 28th, to 75 ft. south of 29th st.

Jenkintown, Pa.—Loan of \$75,000 for establishment of sewer system is being favorably considered.

Lebanon, Pa.—Chairman Becker, of Finance Committee, has presented resolution that City Controller be authorized to transfer \$1,250 from appropriation of \$110,000 for construction of outfall sewer, and to be used in sanitary sewage disposal system. He presented resolution directing City Controller to transfer \$4,900 from appropriation for the construction of the main sewer, at Twelfth and Cumberland sts., to appropriation for construction of the sanitary sewage disposal plant.

Philadelphia, Pa.—Ordinance has been passed to authorize construction of sewers in Gladstone and Roseberry sts. Rudolph Blankenburg is Mayor.

Pottstown, Pa.—State Health Commissioner Dixon has approved Pottstown sewer plans, and estimate of the cost will be ascertained.

Scranton, Pa.—Ordinance has been adopted providing for construction of lateral sewer in Tenth ave., from Washburn st. to point about 350 ft. south, in Fifth Ward. Ellsworth Kelly, City Clerk.

Corpus Christi, Tex.—Acting City Engineer Stevens has prepared plans and specifications for adequate system of storm sewers for downtown. System outlined by Mr. Stevens includes all of that territory under bluff from Laguna to Belden sts., and it is estimated that work will cost \$13,000 and will require about 90 days to complete. Council has passed formal motion accepting plans and specifications and instructed City Secretary Dunn to advertise in local papers for bids for such work. Bids will be opened about January 17.

Dallas, Tex.—Among new improvements planned is laying of 6-in. sanitary sewer in Juliette st., from alley west of Leonard to Allen st.; also another similar sewer in Fairmount st., from Flora to Wade sts. and in Wade st., from Fairmount to Allen sts.

Waco, Tex.—City Commissioners have decided to call election for issuance of sanitary sewer bonds in sum of \$25,000.

Racine, Wis.—Following are sewer improvements decided on: Barker, from North Chatham to North Michigan, \$135; De Koven, from Mead to Racine, \$425; Davis st., \$300; English st., submerge outfall, \$3,000; Fifth st., extend sewer, \$1,500; Graham, \$600; Gould, from North Michigan to North Main, \$1,130; High, from Railroad to Forest, \$100; Rapids Road, from railroad to Forest, \$100; Summitt, from Rapids Road to Gould, \$400; Sixteenth st., extension to sewer outfall, \$3,000; South Main, from Wisconsin st. north, \$175; Thorwaldsen ave., no expense; Yout, from North Erie to North St. Clair, \$125; Linden ave., \$250; Hartman Court, \$125; Franklin st., \$250.

New Westminster, B. C.—City Engineer will prepare plans for construction

of sewer and drainage system for Queensborough Dist.

Victoria, B. C.—It is said that it is proposed to expend about \$598,000 in sewers shortly.

Toronto, Ont.—Citizens have voted \$954,000 bond issue for overflow sewers.

CONTRACTS AWARDED.

Alhambra, Cal.—By City, for constructing storm drains between Huntington Drive and Alhambra road, and Electric ave. and Dos Roble pl., to E. D. Kell, of Pasadena; he bid for reinforced concrete pipe \$1.20 per lin. ft. and vitrified clay pipe \$1.24.

San Jose, Cal.—Casey & Henwood, the only bidders, have been awarded contract for construction Section C of the Fourth Ward sewers at \$3,460. City estimate of cost of this work was \$3,500.

Baltimore, Md.—To Jas. Ferry & Sons, Inc., contract for constructing Sect. 25 of storm-water system at \$279,990.

Philadelphia, Penn.—Contracts for constructing sewers by Board of Public Works, as follows: Cobbs Creek intercepting sewer extension, to Adolph J. Folla, at \$32,000; Lincoln ave. extension, to Emilio Pascuzzi, at \$13,000; Mill Creek sewer at 43d st. and Woodland ave., to Robert Higgins, at \$25,000.

Providence, R. I.—For constructing sewers by Board of Contract and Supply, as follows: To F. E. Shaw, Providence, in Agnes, Troy and McDonough sts., \$15,680; Branch ave. and Woodland Road, \$6,214; Irving ave., \$1,164; Downing and Whitmarsh sts., \$1,224; Eaton st. and Academy ave., \$6,364; to Antonio Aiello, Providence, sewers in Grape and Marietta sts. and River ave., \$1,685; to Charles Crankshaw, Providence, sewers in Eaton and Dunford sts., \$11,795.

Providence, R. I.—Bids for installation of sewers in Agnes, Troy and McDonough sts. and Rodgers court were very close. Contract was given to Frederick E. Shaw for \$15,680.20.

Dallas, Tex.—By City Commissioners, to A. T. Muller at \$2,100 for construction of 8 and 6-in. sanitary sewers.

Paris, Tex.—By City, to Hunter & Hunter, Oklahoma City, Okla., for sewer construction recently noted; vitrified pipe, various sizes; cost about \$12,000; J. W. Crook is Engineer in Charge.

Spokane, Wash.—J. L. Wood was low bidder in warm competition among contractors for job of constructing Fifth Ward subtrunk sewer No. 15, estimated by City Engineer at \$12,986. Low proposal was \$11,078. Following are bids: G. Burgie, \$12,200; Raide & Hukkela, \$12,348; J. L. Wood, \$11,078; DeCamp & Cheatham, \$11,430; Nick Thompson, \$11,598; O. H. Stratton, \$12,400; Scott & Hicks Construction Co., \$12,349; J. W. Baylor, \$13,800; J. C. Broad, \$12,365; Fife Brothers, \$12,844; P. L. Langon, \$13,447.

WATER SUPPLY

Louisville, Ala.—Citizens are said to have voted \$5,000 bond issue for waterworks.

Los Angeles, Cal.—Los Angeles will probably vote upon question of building Graham lateral of Owens River aqueduct, which is to supply Pasadena if Pasadena arranges for share of the water, on Feb. 11. One of the big items in that bond election will be bonds to build and equip power house which is to generate municipal energy for Los Angeles.

Pasadena, Cal.—Hillcrest residents are petitioning for adequate water pipes before having their street paved.

Waterbury, Conn.—It has been voted to install water main on Ledgeside ave. for distance of 200 ft. from Highland ave.

Washington, D. C.—Congress has been asked to appropriate \$1,500 for installing independent water supply in grounds of Executive Mansion for better protection from fire of mansion and contents.

Titusville, Fla.—Bids will be received shortly by City Clerk for \$29,000 waterworks bonds.

Logansport, Ind.—Board of Works has signed contract with the American District Steam Co., of North Tonawanda, N. Y. and Chicago, retaining them as consulting engineers to prepare designs and specifications for proposed filtration plant. Work will begin as soon as weather permits. Bond issue of \$60,000 was voted at last election to finance the job. H. H. Thompson, City Engineer.

Garden City, Kan.—Bonds have been voted for municipal water and light plants.

Kingman, Kan.—Bonds have been voted for municipal water and light plants.

Scott City, Kan.—Scott City has voted \$40,000 in bonds for municipal electric light plant and waterworks. In addition to supplying city with light and water it is intention to supply power to farmers to pump water for irrigation purposes.

Louisville, Ky.—Number of fire hydrants will be erected in various parts of city.

Worcester, Mass.—Committee on Water, of City Council, has recommended appropriation of \$200,000 for construction of larger pipe lines to reservoirs. It is planned to lay 48-in. pipe to Holden Reservoir, and 36-in. pipe to Lynde Reservoir. George W. Batchelder is Chairman Water Commissioners.

Yazoo City, Miss.—Public Service Commission will receive bids for water meters until Feb. 15. Companies wishing to do so may send one or two ½-in. meters to commission for examination and test, provided there be no expense to Commission for said meters. Jas. S. Butler, Supt.

Mountain Iron, Minn.—Citizens have voted to issue bonds for waterworks extension.

Virginia, Minn.—City is contemplating bond issue of \$500,000, for purchasing and improving plant of Virginia Water Co.

Kingston, N. Y.—Board of Water Commissioners has decided to investigate plan outlined by President James F. Dwyer of Board in regard to increasing water pressure on high points by laying of extra 24-in. pipe from reservoir No. 2 to power house, a distance ½ miles, and entire board will act as committee in the matter and accompanied by competent engineer will go over water shed and report its findings on Jan. 17.

White Plains, N. Y.—Bids will be received until Jan. 14 for \$8,000 water bonds. Geo. J. Cox is Village Clerk.

Lillington, N. C.—Election will be called shortly to vote on bond issue of \$15,000 for constructing water and sewer systems.

Cincinnati, O.—Number of fire hydrants will be installed in various streets.

Glendale, O.—Contract will shortly be let for raising present standpipe, and laying new mains; probable cost, \$7,000.

Oregon City, Ore.—Officials of Oregon City are preparing petition to be presented to Water Board asking that Bull Run water be supplied them. For months they have been endeavoring to formulate some plan whereby they could provide their city with pure water.

Altoona, Pa.—Establishment of pumping station at High Service Reservoir, and building of stand pipe are recommended by Mayor; also reconstruction of Prospect Hill reservoir.

Millville, R. I.—Water Committee has voted to ask for appropriation to install water system.

Providence, R. I.—Resolution has been passed calling for creation of committee of five members of City Council and appropriation of \$10,000 for their expenses, for purpose of investigating water situation.

Mitchell, S. D.—Brule County voted last November \$10,000 for purpose of digging four artesian wells to secure enough water to refill Red Lake, vast tract of land, which was formerly lake covering great portion of thirteen sections of land.

Denison, Tex.—Mayor A. W. Acheson has asked City Attorney to investigate possibility of city of Denison issuing bonds to extent of \$40,000 to be used in installing filtering plant at Shawnee reservoir, recently completed.

Fort Worth, Tex.—Advisability of petitioning City Commissioners to proceed without delay toward issuance of additional bonds for completion of West Fork Reservoir is being considered by Waterworks Committee of Fort Worth Chamber of Commerce.

Granbury, Tex.—Election may shortly be held to vote on issuing bonds for waterworks and electric light plant.

Norfolk, Va.—County Water Company has been given permission to install pipes on western side of Wilson ave., between Land and Goff sts., on Gordon st., east of Chapel st. and on Johnson ave. at northwest corner of Proeschers st.

Norfolk, Va.—Question of joint water supply for Norfolk and Portsmouth is being discussed.

Toronto, Ont.—Citizens have voted to issue \$6,677,000 bonds for waterworks extensions and \$1,375,000 for addition to filtration.

CONTRACTS AWARDED.

Washington, D. C.—By District Commissioners, contract for steel water towers for municipal government, to Des Moines Bridge & Iron Co., Curry Bldg., Pittsburg, Pa., at \$13,200.

Bloomington, Ill.—By Board of Local Improvements, contract to Frank Sullivan, city, at \$3,070, for 6-in. cast-iron water mains in portions of Clay and Moulton sts. Elmer Folsom is City Engr.

Chicago, Ill.—Contracts to furnish and erect at Lake View pumping station, vertical triple-expansion crank and fly-wheel pumping engine of 25,000,000 gallons daily capacity, and re-erecting old pumping engine, to Bethlehem Steel Co., South Bethlehem, Pa., at \$13,000.

Albin, Ia.—By City Council, contract to S. W. Dooley to sink test wells out near city reservoir at 25 cts. per ft.

Osceola, Ia.—By City Clerk, contract for construction has been awarded to J. B. Shaw, of Davenport.

Boston, Mass.—To Standard Cast Iron Pipe & Fdy. Co., of Bristol, Pa., contract for 7,000 tons 8 to 20-in. c.-l. pipe, for high pressure fire service at \$22.35 per ton; total cost, about \$200,000.

St. Paul, Minn.—Contracts to furnish about 100 tons of c. l. water pipe, to U. S. Cast Iron Pipe & Foundry Co., Chicago, Ill., at \$27.85. Total, \$27,223. Other bids were: Clavornorgan Pipe & Foundry Co., \$27,508; American Cast Iron Pipe Co., \$28,379; R. D. Wood & Co., \$30,096; Massillon Iron & Steel Co., \$28,092.

New Brunswick, N. J.—Bids have been opened by Bd. of Water Comrs. for construction of mechanical filter plant, of 6,000,000 gal. daily capacity, including low-lift pumps, coagulating basins, aerators, filtered water basin, filters and all appurtenances, from plans of Geo. W. Fuller, 170 Broadway, N. Y. City, and lowest bid received was that of John W. Danforth Co., Buffalo, \$108,000. Totals of bids received: Pittsburgh Filter Mfg. Co., Pittsburgh, Pa., \$124,575; Norwood Eng. Co., Florence, Mass., \$136,675; Roberts Filter Mfg. Co., Darby, Philadelphia, Pa., \$123,258; Nicola Filtering Co., Pittsburgh, \$137,260; New York Continental Jewell Filtration Co., N. Y. City, \$119,725.

Freeport, L. I., N. Y.—For extensions of water and light systems at Freeport Municipal Power House by Village Board of Trustees, to William M. Sheehan & Co. Bid of Sheehan Company was \$17,970. Work is to be done under plans and specifications and supervision of William R. Smith, engineer.

Hubbard, O.—By Council, for furnishing No. 1840 pump with 40-h.p. motor to Cleveland Ice Machine Co.

Ponca, Okla.—To improve water system, has been awarded to Charles Halstead, Breckenridge, Mo., at \$5,945.

Hood River, Ore.—To Reliance Construction Co., of Portland, contract by city, for making of extensions to waterworks system at \$44,021. Work includes divisions 1, 3 and 4, furnishing material, digging of trenches and placing of pipe.

Portland, Ore.—Bids for 6,000 tons of cast iron pipe of various sizes and 225 tons of special castings have been opened by Water Board. The United States Cast Iron Pipe & Foundry Co. was lowest bidder, amount being \$218,119. The Oregon Iron & Steel Co. was next lowest, proposal being \$218,326. Giamorgan Pipe & Foundry Co. bid \$220,485, and the R. D. Wood & Co., \$220,556. Phoenix Iron Works bid \$11,925 for furnishing specials only, and Independent Foundry Co., \$12,825.

Camden, S. C.—By City Commissioners, to Tucker & Laxton, of Charlotte, N. C., to construct waterworks and electric-light plant; auxiliary and main pump station, steam and electric pumps, 300-horse-power boiler plant, 1,000,000-gallon filter plant, reservoir, generators, complete lighting system, and about 2 miles 10 and 12-in. pipe line; W. J. Dunn is Chairman Commissioners of Public Works.

Dallas, Tex.—Lowest bid received for constructing Oak Cliff pumping station was submitted by Lindsey & Smith, at \$9,751.

Fort Canby, Wash.—To C. L. Houston, of Astoria, contract for construction of 2,400 ft. of 4-in. pipe line at Fort Canby, Wash., at \$2,225.

Rawlins, Wyo.—By city, contract for waterworks improvements to McKay & Geddes, of Denver, Colo., for \$20,907. The

work includes furnishing material and laying 5,000 ft. 10-in. lap-welded steel pipe and 4,160 ft. 6-in. c.-l. pipe with necessary valves, fittings and connection, and 500,000-gal. steel reservoir with foundation.

LIGHTING AND POWER

Washington, D. C.—Lighting of Ballston road is being considered.

Gainesville, Fla.—Plans are being made for installation of white way.

St. Augustine, Fla.—Upon motion of Alderman Center, Clerk was authorized to advertise for bids for lighting city for new year.

Rome, Ga.—Plans and estimates are being prepared by Solomon & Norcross, of Atlanta, for electric light plant to light streets and furnish commercial light and power.

Rome, Ga.—Question of municipal ownership of electric lighting plant is agitating minds of Rome's City Council, and it is expected that definite steps toward ownership of such a plant will be taken within near future. Engineers have been employed, and have estimated that distribution and generating plant to serve city can be erected for about \$40,000, and that lights can be furnished at less expense than under existing contracts.

Bluffton, Ind.—Since city of Bluffton has decided in favor of municipal ownership in way of lighting and waterworks system, Council has decided to make extensive repairs on plant and have arranged to receive bids on installing machinery.

Coffeyville, Kan.—One of the plans for relief from gas situation here is to call election for purpose of voting upon proposition either to set aside \$5,000 of city's funds or to issue that amount in bonds, proceeds to be used in making test for gas.

Garden City, Kan.—Bonds have been voted for municipal light and water plants.

Kansas City, Kan.—First step toward municipal ownership of gas plant in Kansas City, Kan., has been taken when Mayor James E. Porter appointed committee to report on cost of such plant and manufacturing expenses. Committee was instructed to consult engineers and examine reports of gas plants. Investigation is to be exhaustive and will determine approximate cost of distributing gas to every home in city.

Kingman, Kan.—Bonds have been voted for municipal light and water plants.

Minneola, Kan.—Minneola has decided on bond election, but whether light plant or waterworks or both will be voted on is not determined.

Scott City, Kan.—Bonds in sum of \$40,000 have been voted for electric light plant and waterworks.

Winchester, Ky.—First formal step towards changing electric lighting system of Winchester and adopting so-called "white-way" system, has been taken by City Council.

Holyoke, Mass.—City Clerk Sheehan has received communication from Committee on Municipal Lighting of Fall River Chamber of Commerce asking for data on merits of municipal-owned lighting plant.

Porter, Minn.—Village Council has granted Citizens Light, Heat & Power Co. franchise to construct and maintain transmission line and furnish electricity.

Glasgow, Mont.—Installation at municipal electric light plant of generator, direct connected A. C., 2,300-volt, 3-phase, 60-cycle, 65-kw. is being considered.

Newark, N. J.—A move toward lighting streets of North Arlington has been made by Borough Council, when lighting committee was directed to obtain information from Public Service Electric Company as to cost and number of lamps necessary.

Orange, N. J.—Estimates for extension of municipal lighting system have been ordered prepared by Building Committee of Common Council.

Maybrook, N. Y.—Residents of Maybrook have signed petition asking officers of Town of Montgomery to establish lighting system in that place.

Newburgh, N. Y.—Mayor Corwin recommends gradual extension of ornamental street lighting system.

White Plains, N. Y.—Election may shortly be held to vote on question of constructing municipal electric light plant.

Elizabeth City, N. C.—Elizabeth City is preparing to own her electric lights and water, if plans that are now being formulated, materialize. Bill is being drafted which will be introduced in Legislature for purpose of authorizing town to issue bonds to purchase old system or to build new one.

Eric, Pa.—Specifications for bids to furnish street lights for city of Erie have been posted at office of City Engineer Briggs.

Livermore, Pa.—Council is considering question of calling election to vote on bond issue for electric light plant.

Sharon, Pa.—Council has definitely decided to erect municipal light plant; estimated cost, \$70,000.

York, Pa.—Extension of conduit system to include laying underground of wires of electric light companies has been recommended by Mayor.

Charleston, S. C.—Better lighting of King st. is being discussed.

Nashville, Tenn.—Ordinance asking for 50-year franchise by Nashville Traction Co., capitalized at \$500,000, for purpose of constructing lines and operating cars over 34 miles of streets of Nashville, has been introduced into City Council. Ordinance states that commercial lighting system is to be constructed and provides for payment of 3 per cent. of its gross revenues to the city annually.

Dallas, Tex.—Commissioner J. E. Lee has announced that he will probably bring in report of Board of Commissioners recommending acceptance of bid he has received from Mosher Manufacturing Co., of Dallas, in connection with proposition from Dallas Electric Light & Power Co. for furnishing and wiring of ornamental light poles for Main and Commerce st. lighting system. Proposition submitted by two concerns will enable Board to install new system at cost of about \$50 per pole.

Walla Walla, Wash.—That Mill Creek will furnish approximately 2,727 horsepower for operation of municipal power plant is opinion of County Engineer L. W. Lohier, who took set of figures regarding flow of the creek at time he was city engineer some years ago. Mr. Lohier is of opinion that municipal plant would pay city sufficient power for illumination of all city streets, business houses and residences.

CONTRACTS AWARDED.

Spring Grove, Minn.—To Porter & Lockwood, of Northwestern Electrical Equipment Co., of St. Paul, contract for constructing municipal electric light plant.

Dallas, Tex.—Proposition of Mosher Manufacturing Co. to furnish poles for ornamental lighting system to be installed on Main and Commerce sts., and of Dallas Electric Light & Power Co. to furnish material and labor for installation of proposed system of illuminations, have been accepted by Board of Commissioners. Under terms of these propositions poles are to be furnished city at rate of \$49.50 each, and city is to pay electrical company for installation \$2.50 per lin. ft. for all street intersections and city property, and also for Federal Building lot on both Main and Commerce sts. A charge of \$45 per annum per light is to be made.

FIRE EQUIPMENT

Atlanta, Ga.—Urgent recommendation that city equip its fire department with motor-driven apparatus is included by Chief W. B. Cummings in his annual report to Mayor and Council. Chief recommends that appropriations be made to equip new station, No. 14, on East Point road; and to build stations in Fifth and Seventh Wards on sites that already have been bought; and to buy lot and build station somewhere in Eighth Ward.

Augusta, Me.—Chief Frank G. Reynolds, of Augusta Fire Department, has just completed his annual report for past year and in it he makes number of important recommendations to City Council. Most important recommendations are for replacement of some of present horse-drawn machines with modern motor-driven machines and establishment of new station on The Hill with two motor machines. It is purpose of chief to replace as fast as possible all of present horse-drawn machines with modern motor-driven machines, as present motor-driven machines have proved their worth.

Waterville, Me.—Modernizing of fire system is being discussed.

Haverhill, Mass.—Purchase of automobile ladder truck for fire department is being considered; also automobile fire engine.

Haverhill, Mass.—Mayor Moulton recommends purchase of new fire hose and motor ladder truck and motor hose wagon or combination.

Lynn, Mass.—Mayor George H. Newhall has recommended appropriation for building of suitable fire house.

Northampton, Mass.—Mayor has recommended that fire department be provided with additional motor apparatus.

Pittsfield, Mass.—Mayor Moore has recommended purchase of motor ladder truck.

Salem, Mass.—Mayor Hurley recommends erection of two new fire stations.

Duluth, Minn.—Following recommendations have been made by Chief Joseph Randall, a new site and house at West Duluth; a new house at New Duluth; fire boat; a new aerial and motor truck to replace No. 1 truck; a combination engine and hose wagon to replace two rigs at No. 4; a combination chemical and hose motor rig to replace hose wagon at No. 8; two tractors to propel Engines No. 1 and 2; three thousand feet of new hose.

Manchester, N. H.—New alarm boxes will be placed about city of thoroughly metropolitan type. Building of new fire house in West Manchester is assured and it will be located at junction of South Main st. and will house sufficient apparatus to be of great value in the protection of property in that section of city.

Branchville, N. J.—Borough Council has decided to build borough hall, and it was voted to employ architect to draw plans for two-story building capable of housing the fire apparatus and furnishing offices for borough officials.

Elizabeth, N. J.—Mayor Mravlag's recent recommendation that No. 5 fire station in Wall st., having outgrown its usefulness, should be replaced by modern and larger building suitable for two companies and installation of motor apparatus, is being discussed.

Lambertville, N. J.—Hibernia Fire Company has announced to Lambertville Council that it intends to purchase automobile engine to cost \$9,000, and asked for \$3,000 toward cost. Ordinance has been introduced providing for grant.

Newark, N. J.—Substitution of motor-drawn fire apparatus for present horse-drawn type will mark current year's administration of local fire department, provided necessary funds can be secured to effect the change.

New City, N. Y.—At meeting of New City Fire Engine Company it was decided to purchase automobile hose truck and also to extend fire limits so that territory embraced covers 1½ miles in four directions from center of village.

Rochester, N. Y.—Erection of fire house in northeastern section of city has been authorized.

St. Johnsville, N. Y.—Fire department has been authorized to purchase three dozen smoke extinguishers.

Cleveland, O.—First steps toward motorizing fire department will be taken by Council, by introducing ordinance, authorizing Department of Public Safety to expend \$45,000 for fire equipment. Collingwood will get first modern fire fighters at its new station. It will consist of hook and ladder, motor pumping engine and combination hose and chemical. The old South Brooklyn house will get one combination engine and hose wagon and two hose wagons of high pressure.

East Youngstown, O.—Resolution has been passed authorizing Mayor and Clerk to draw up papers, contracting for purchase of new fire alarm apparatus from Gamewell Co., of Pittsburgh. Consideration, \$2,350.

Springfield, O.—Board of Control for second time has rejected all bids for furnishing motor hose trucks for fire department and has ordered City Clerk E. D. Seggeron to advertise for new bids. The Kelly Co. was only bidder upon fire trucks, but two local firms under bid it for furnishing of auto patrol truck. The King garage was low bidder, offering a 50-horsepower Cole machine, fully equipped, for \$2,650, which was \$200 less than bid of Kelly Co.

Chambersburg, Pa.—Council will install fire alarms at necessary places as town can spare the money.

York, Pa.—Motor drawn apparatus for fire department has been recommended by Mayor.

Dallas, Tex.—Board of Commissioners has decided upon establishment of new fire station in Oak Cliff, at corner of Tenth and Van Buren sts.

Newport News, Va.—Proposal to buy a \$5,500 motor tractor for city Fire Department is being considered.

M'Mechen, W. Va.—Purchase of fire fighting apparatus is being discussed.

CONTRACTS AWARDED.

Jersey City, N. J.—Award of fire hose contracts has been made by Board of Fire Commissioners. The Voorhees Rubber Co., of this city, received major portion of business, this company being awarded a contract to furnish 2,700 ft., of which 2,100 ft. is to be 2½-in. hose at \$1.20 and 600 ft. is 3-in. hose at \$1.45. The Eureka Fire Hose Co. will furnish 1,000 ft. of 3-in. hose at \$1.40; the New Jersey Car Spring & Rubber Co. 500 ft. of 3½-in. hose at \$1.10, and the Republic Rubber Co., 1,600 ft. of 2½-in. hose at \$1.

Canton, O.—For furnishing 6,800 ft. of cotton jacketed hose as follows: Fabric Fire Hose Co., 3,500 ft.; Gutta Percha & Rubber Mfg. Co., 800 ft., and Forest City Rubber Co., 2,500 ft.

Newport News, Va.—After session lasting several hours during which each tender was carefully considered and type of machine offered discussed by members of committee and Chief W. K. Stow, Council Committee on Fire Department and Water adopted resolution recommending to Council that offer of American La France Fire Engine Co. to supply combined hose wagon, chemical engine and tractor for fire department at cost of \$5,500 be accepted. Bids were as follows: United States Fire Apparatus Co., bid of \$4,750; American La France Fire Engine Co., bid \$5,500; Webb Motor Car Company, bid of \$5,500 for No. 1 tractors and bid of \$5,300 for No. 2 tractor; Seagrave & Co., bid of \$5,400; Robinson Motor Car Co., bid of \$5,500. Appropriation, set aside for purchase of combined hose wagon, chemical engine and tractor by Council was \$5,500.

BRIDGES

Waterbury, Conn.—Bond issue of \$100,000 is recommended for construction of Brooklyn's new bridge.

Washington, D. C.—Plans for new \$275,000 bridge, which were commenced under supervision of late Thomas C. J. Baily, Engineer of Bridges of District, are now being completed under direction of David E. McComb, Mr. Baily's successor. Structure will be concrete masonry arch.

Macon, Ga.—If offer of County Commissioners is accepted by Council city will take possession of Spring st. bridge and will appropriate \$4,000, to be used conjointly with appropriations of \$6,000 from county and \$3,000 from Water Board for improvement of structure.

Springfield, Ill.—Citizens have voted in favor of \$10,000 bond issue for construction of bridges.

Indianapolis, Ind.—Appropriation of \$50,000 toward building bridge over White River at New York st. has been voted.

Atchison, Kan.—Mayor and Council have authorized construction of viaducts over Missouri Pacific R. R. tracks at 10th and 14th sts. crossings. S. K. McCrary is City Engr.

Belvidere, N. J.—Appropriation of \$20,000 has been made for bridges.

Albion, N. Y.—New bridge over barge canal at Main st. here will be electrically operated from tower at northeast corner of bridge. Roadway will be 19 ft. wide and sidewalk on east, 6 ft. wide. Span of bridge will be 115 ft. 8 ins.

Niagara Falls, N. Y.—Corporation Counsel Anderson has been instructed by Board of Public Works to find out what steps would be necessary for erection of new bridge to replace one over Erie Railroad tracks at Pierce ave.

Cleveland, O.—County Comrs. have received plans for construction of bridge to replace Brooklyn-Brighton Bridge. Estimated cost, \$1,000,000.

Eugene, Ore.—The long covered bridge across Willamette River in this city will be replaced in 1913 by modern steel structure to cost \$35,000. Lane County Court has signed contract with Coast Bridge Co., of Portland, for steel for bridge, to cost \$23,700, but court will advertise for bids for erection of structure. Bridge will consist of one span 301 feet long, another 100 feet long, and approaches. It will be 20 feet wide.

Ft. Worth, Tex.—Plans for Samuels Ave. and Riverside Bridges have been completed by Brenneke & Fay, who will submit them to County Comrs.; estimated cost, \$150,000.

CONTRACTS AWARDED.

Chicago, Ill.—By Board of Public Works, for construction of sub-structure and superstructure of highway bridge over north branch of the Chicago River, at Wilson ave., to Nash, Dowdle Co., 9 S. LaSalle st., at \$49,503.

Rushville, Ill.—By Board of County Commissioners, contract to E. E. Buck, Springfield, at \$4,890, for construction of Star Bridge. Other bidders were: Miller & Borchering, \$5,195; Blodgett Construction Co., \$6,995; Stites Steel Bridge & Iron Co., \$5,100; East St. Louis Bridge Co., \$5,200; Illinois Steel Bridge Co., \$5,095.

Mt. Vernon, Ind.—By Board of Posey County Commissioners, contract for construction of 34 bridges to Mt. Vernon Construction Co., Mt. Vernon, Ind., at \$19,336.

Wichita, Kan.—By Co. Comrs. for constructing bridges as follows: Over Little River, one in Valley Center Township to Missouri Valley Bridge & Iron Co., 758 S. Fourth st., St. Louis, Mo., at \$5,149; and one in Park Township to Wichita Constr. Co., of Wichita, at \$4,625.

Boston, Mass.—By State Highway Commission, contract to United Construction Co., Albany, N. Y., at \$9,000, for construction of sub-structure of bridge across Deerfield River, between Buckland and Charlemont.

New Brunswick, N. J.—By Board of Chosen Freeholders of Middlesex County, to J. T. McGovern, Hardensburg st., New Brunswick, at \$5,400, for bridge over Keadby creek in Woodbridge Township.

Oswego, N. Y.—Contract for construction of new bridge over Oswego river at Phoenix has been awarded to Contractor Joseph H. Connors by County Superintendent of Highways E. A. Howard. His bid was \$38,836.10. Estimate of \$42,904.98 was also submitted by firm of Barrett & Ingersoll, of Rochester. Work on bridge will be started early in spring. Concrete piers have already been built in separate contract at cost of about \$18,000. Firm of Barrett & Ingersoll has contract for building state's portion of bridge. Their contract price was \$191,000.

Tuscarawas, O.—To Geo. J. Bock & Son, of Coshocton, contract for constructing concrete substructure of bridge over Tuscarawas River as follows: 1,368 cu. yds. concrete, \$7; 600 cu. yds. wet excav., \$2; 500 cu. yds. dry excav., 50 cts.; 2,368 lin. ft. piling, 49 cts.; total, \$12,186. Totals of other bids: Mac. Wardell, Strasburg, \$12,860, and W. M. Brode & Co., Newcomerstown, \$14,154.

Walla Walla, Wash.—To Portland Bridge & Iron Co., contract by Walla Walla County Commissioners for construction of a 100-ft. steel span over Yellowhawk, south of this city. Five bids were submitted, that of Portland company, in sum of \$2,546, being considered lowest and best. Concrete work will be done by L. Lanning, of this city, whose bid was \$3,180.

MISCELLANEOUS

Glendale, Cal.—Civics Committee of Tuesday Afternoon Club is urging proposition that will provide park or public square for every precinct in this city.

Nevada City, Cal.—Meeting of City Trustees will be held to consider proposition of submitting bond issue of \$20,000 to the people, money to be used in construction of new City Hall and improvements for city sewer system.

Sacramento, Cal.—Voters will be asked to raise \$700,000 to purchase site for state building.

San Jose, Cal.—City Engineer has been instructed to prepare plans for incinerator according to his information.

San Jose, Cal.—City Engineer has submitted plans for parking south side of San Fernando st., between Fourth and Seventh sts.

San Jose, Cal.—Mayor Monahan has reported that Park Commissioners desired that all bids for construction of pavilion at Alum Rock Park be rejected.

and that plans be resubmitted to commissioners and architect for revision with view to reducing the cost.

Washington, D. C.—Municipal asphalt plant for District of Columbia is recommended.

Atlanta, Ga.—A municipal lodging house for temporary housing of unfortunates who come to Atlanta is recommended by City Warden Thomas Evans in his annual report to Mayor and General Council.

Chicago, Ill.—The Standard Paving Co., 9 South La Salle st., Chicago, is in the market for a one-car portable asphalt plant in good condition.

South Bend, Ind.—Park improvements for coming year have been discussed by Board of Park Commissioners and George E. Kessler, Consulting Engineer in charge of work in South Bend. According to tentative arrangements Potawatomi Park will be first to be improved. It is planned to complete installation of playgrounds before fall of 1913.

Danville, Ky.—Danville is to have new \$30,000 workhouse. City has voted \$10,000 bond issue, and Fiscal Court has agreed to set aside \$10,000 to help in erection of building. Town and county jointly own old workhouse, which will be sold at auction.

Lexington, Ky.—Ordinance providing for issue and sale of city bonds in sum of \$25,000 for park purposes has been adopted.

Boston, Mass.—Plans for establishment of municipal gasoline station to supply city's motor apparatus with gasoline at wholesale price are being discussed by Mayor Fitzgerald.

Haverhill, Mass.—Mayor Moulton recommends purchase of motor driven patrol wagon.

Marblehead, Mass.—A movement is on foot to bring about purchase of new automobile ambulance for use of police department such as is now in use in Swampscott.

Pittsfield, Mass.—Mayor Moore has recommended erection of contagious hospital and establishment of public market.

Salem, Mass.—Mayor Hurley recommends purchase of motor patrol and ambulance wagons.

Taunton, Mass.—Mayor Fish has recommended purchase of police automobile.

Cadillac, Mich.—Plans are being planned for more playgrounds.

Camden, N. J.—Finance Committee of City Council of city of Camden will receive sealed proposals at 8 o'clock p. m., on January 27, 1913, for purchase of \$18,000 4 per cent. 50-year dock bonds. George O. Frey, City Treasurer.

Jersey City, N. J.—Plans for proposed comfort station at triangle of Bergen ave. and Montgomery st. are being considered.

Johnstown, N. Y.—Mayor has recommended erection of city building in East Main st.

Newburgh, N. Y.—Mayor Corwin recommends submission to taxpayers at special election of proposition to repair or rebuild South st. pier.

Niagara Falls, N. Y.—Board of Public Works has directed City Engineer Parkhurst to prepare specifications for collection and disposal of city refuse. Engineer was instructed to submit same at next meeting of the Board called for January 21.

Rochester, N. Y.—Comptroller Osborne has formulated and published advertisement for bids for \$6,719,000 worth of bonds, for which he will receive sealed bids. Bonds will be issued for purposes named and will be dated and matured as follows: Water bonds, \$1,849,000, dated Jan. 15, 1913, due Jan. 15, 1933; local improvement bonds, \$2,100,000, dated Jan. 15, 1913, due Jan. 15, 1933; sewage disposal bonds, \$1,000,000, dated Jan. 15, 1913, due Jan. 15, 1933; Exposition Park bonds, \$470,000, dated Jan. 15, 1913, due Jan. 15, 1933; incinerating plant bonds, \$100,000, dated Jan. 15, 1913, due Jan. 15, 1933; park improvement and extension bonds, \$140,000, dated Jan. 15, 1913, due Jan. 15, 1933; Rochester and State Line Refunding bonds, \$520,000, dated Feb. 1, 1913, due Feb. 1, 1933.

Syracuse, N. Y.—Market Committee of Common Council is planning to take action along line recommended by Mayor Edward Schoeneck in his annual message for improvement of public market at North Salina and Pearl sts.

East Youngstown, O.—Village is to have new park. It will consist of 13½ acres, situated on northeast side of village, Council authorizing appropriation for its purchase. Price to be paid for land is \$10,000.

Springfield, O.—Board of Control for second time has rejected all bids for furnishing auto patrol for police department and has ordered City Clerk E. D. Seggerson to advertise for new bids.

Butler, Pa.—Purchase of another automobile truck is recommended.

Chester, Pa.—In his annual message to Chester Councils Mayor William Ward, Jr., advocated purchase of motor patrol wagon and two motorcycles for Police Department.

Erie, Pa.—Purchase of four air pressure flushing wagons is being considered.

Reading, Pa.—Reading Board of Health asks \$43,000 appropriation to carry on its work during 1913; \$10,000 of this to be used to purchase site for municipal hospital.

Sharon, Pa.—Recommendation for purchase of auto police patrol for use in police station is made in annual report of Chief of Police Williams.

York, Pa.—Purchase of automobile police patrol and city ambulance has been recommended by Mayor.

York, Pa.—Need for improvement in condition of Codorus Creek has been strongly emphasized in annual message of Mayor John R. Lafaue.

Providence, R. I.—Mayor Gainer recommends erection of public baths as fast as conditions will permit, and comfort stations at Randall square, Olneyville square and Exchange pl.

Bonham, Tex.—The Commissioners Court has employed E. D. Hayden, of Ballinger, a landscape artist, to lay off and complete work of converting court house lawn into beautiful park.

Burlington, Vt.—Board of Aldermen have voted additional \$5,000 to repair present City Hall and establish new heating and ventilating plant, according to plans furnished by Architect Frank L. Austin.

Spokane, Wash.—Recommendation of purchase of two more park sites has been filed with city through Park Board.

Spokane, Wash.—City Council has authorized Commissioner Hayden and Purchasing Agent John C. Argall to buy automobile for second assistant fire chief without asking for bids. Bids were asked recently and proving unsatisfactory were rejected by Council. One was for \$3,000 for Franklin roadster and another for \$950 for Overland runabout.

Racine, Wis.—At meeting of Common Council it has been finally decided that \$7,000 be appropriated from general funds to remodel east end of city hall.

CONTRACTS AWARDED.

Macon, Ga.—By Street Committee of City Council for combination public sprinkler and street sweeping machine to Kindling Manufacturing Co., of Milwaukee.

Utica, N. Y.—Contract for motor combination patrol and ambulance has been let to H. A. House, of this city, for \$4,475 by members of Board of Contract and Supply.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
La.,	New Orleans...	7.30 p.m., Jan. 22..	Small granite blocks on concrete.....	W. A. Kernaghan, Pres.
Tex.,	Galveston.....	Noon, Jan. 23..	Brick or wood, 1,814 yds.; 776 ft. concrete bulkhead.....	V. Austin, Comr.
D. C.,	Washington.....	2 p.m., Jan. 24..	Emulsifiable road oil, 100,000 gals.....	Comrs.
Fla.,	Jacksonville.....	3 p.m., Feb. 10..	Pavement on concrete, 98,800 yds. (See proposal add this issue.)	H. Gaillard, Chrmn.
SEWERAGE				
N. J.,	Newark.....	3.15 p.m., Jan. 23..	Six inch clay pipe, 38,000 ft., etc.....	M. R. Sherrerd, Chf. Engr.
WATER SUPPLY				
W. Va.,	Wheeling.....	Jan. 20..	One mile water mains.....	Co. Aud.
N. Y.,	Niagara Falls.....	7.30 p.m., Jan. 20..	Water main and appurtenances.....	F. S. Parkhurst, Jr., Engr.
Cal.,	San Francisco.....	Jan. 28..	Twelve miles 4 to 12-in. pipe in Exposition Grounds.....	Exposition Company.
Cal.,	San Diego.....	Feb. 3..	Cast iron pipe, 4,733 tons.....	City Clk.
N. J.,	Ramsey.....	Feb. 4..	Cast iron pipe, 950 tons; 100 hydrants; 100 valves, well, pump and reservoir.....	H. R. Parvin, Boro. Clk.
FIRE EQUIPMENT				
Pa.,	Pottsville.....	Jan. 20..	Fire extinguishers, chemical engines, etc.....	J. E. Cantner, Co. Compt.
Ohio,	Sidney.....	Jan. 22..	Motor triple comb. pump, chemical and hose wagon.....	Dir. Pub. Serv.
Wyo.,	Sheridan.....	Feb. 10..	Motor comb. chemical & hose wagon.....	J. J. Winthrov.
Kans.,	Chanute.....	Noon, Feb. 1..	Five hundred feet 2½-in. fire shoe.....	G. T. Amyx, C. Clk.
MISCELLANEOUS				
Pa.,	Aspinwall.....	7.30 p.m., Jan. 20..	Removing and disposing of garbage, etc.....	S. R. Chase.
Utah,	Logan City.....	8 p.m., Feb. 4..	Removing garbage.....	H. G. Hayball, Comr.

Tarvia

*Preserves Roads
Prevents Dust~*



West Washington Avenue, Madison, Wis. Road treated with Tarvia B.

Madison's Experience with Tarvia

IT is significant that towns which once try out Tarvia for their roads get the habit and keep on using Tarvia year after year.

Madison, Wis., has had a typical experience which began in 1910, when Marston Avenue was built with Tarvia X. This street is part of a boulevard route and receives much automobile traffic.

Tarvia X when introduced into the macadam gave to the road a plastic element and this automobile traffic simply ironed it out smooth. Instead of being in continuous disrepair, this street was soon considered a model. Tarvia A and Tarvia B, the lighter grades of

Tarvia for surface work, have also been successfully used in Madison, and the expense of maintenance by the Tarvia method decreases year by year.

An expert observer of these Tarvia streets is Mr. G. H. Mainwaring, County Highway Commissioner at Gotham, who writes:—

"I have been watching the streets in Madison, on occasional visits there, and the good service your products seem to be giving with the considerable amount of mixed traffic, induces me to regard it highly as a surface treatment for country roads."

There are three kinds of Tarvia—"Tarvia X" for road and pavement construction, "Tarvia A" for surface work and "Tarvia B" for dust suppression and road preservation. The first two are very dense and viscid and require heat for application. "Tarvia B" is applied cold.

Booklets free on request.

Barrett Manufacturing Company



New York Chicago Philadelphia Boston St. Louis Kansas City Cleveland
Cincinnati Minneapolis Pittsburgh Seattle Corey, Ala.
The Paterson Mfg. Co., Ltd.—Montreal, Toronto, Winnipeg, Vancouver, St. John, N. B., Halifax, N. S.

STREETS AND ROADS

Santa Cruz, Cal.—Plans for bonding county between \$500,000 and \$1,000,000 are being made by committees appointed jointly from this city and Watsonville. Efforts are being made for extension of state highway to Watsonville via Chittenden pass.

Meeker, Colo.—People of Phippsburg section of northwestern Colorado are endeavoring to raise sufficient money for purpose of placing in good condition roads and trails leading from Rio Blanco county cattle country across flat-tops to stock yards in that town.

St. Augustine, Fla.—Paving of Saragossa st. has been assured.

Fort Wayne, Ind.—Board has under consideration request for paving of Michigan ave., from Broadway to Nelson.

St. Martinville, La.—Town Council has ordered cement walks constructed on three of principal streets, Main, from southern to northern limits; Port st., from Evangeline Oak, on bayou bank, to Southern Pacific crossing; Bridge st., from graveyard, on east side of Bayou Teche, to Southern Pacific crossing, on west side of Teche. Other petitions will be presented for next principal streets in near future.

Blumfield, Mich.—Blumfield Township has voted for bond issue of \$3,500 for good roads by ballot of 188 to 38 and ten miles of added roadway will be constructed this coming season. Roads will give fine road between Saginaw and Reese and Vassar.

Bay St. Louis, Miss.—It has been decided to spend money from recent bond issue in improving streets.

Collins, Miss.—Board of Road Commissioners of this district has rejected bids for road maintenance and ordered bids readvertised, to be received and opened at regular meeting in February.

Natchez, Miss.—Profiting by its experience with Garretson-Brewer Company, which defaulted on contract to improve sixty miles of roads in Adams County, Board of Supervisors has decided to call for check of \$2,500 to accompany every bid and will advertise for bids to be submitted at February meeting.

Trenton, N. J.—Road and Bridge Committees of old Board of Freeholders have decided to repair Manalapan thoroughfare, below Hightstown, and Mercerville road, between Bromley Inn and Mercerville. Work on both roads must be completed by May 1.

Brooklyn, N. Y.—At last meeting of Newtown Local Board resolution has been passed to grade, curb, pave with asphalt and lay cement sidewalks on Cornelia st., Ridgewood, westerly from Wyckoff ave. to Brooklyn line, at estimated cost of \$8,000. Also to pave with asphalt block on concrete foundation Sherman st., Long Island City, from Broadway to Grand ave., at estimated cost of \$18,100; also, Woolsey ave., Long Island City, from Steinway ave. to Second ave., at estimated cost of \$25,900; also, to construct catch basin on the northwesterly corner of Woodward ave. and Silver st., Ridgewood, to cost \$200.

Troy, N. Y.—City Engineer's Department contemplates construction of about 160,000 sq. yds. of pavements of various types on following streets: Hoosick st., from Burdett ave. to the City Line, about 12,000 sq. yds.; Fifth ave., North End, from First st. to Twenty-sixth st., about 75,000 sq. yds.; Fourth st., from Fulton st. to Junction of First st., about 60,000 sq. yds.; First st., from Second ave. to Seventh ave., about 4,000 sq. yds.; River st., from Ferry st. to Adams st., about 4,000 sq. yds.; Adams st., from Second st. to River st., about 3,000 sq. yds. It is also intention of this department to resurface Hoosick st., from Tenth st. to Burdett ave. A. E. Roche, Deputy City Engineer.

Dayton, O.—Ordinance has been passed authorizing sale of bonds for im-

provement of Gillespie st., from Burkhardt ave. to Fifth st. W. D. Huber, president of Council.

Seranton, Pa.—County Commissioners will consider readvertising for bids for uncompleted sections of county road. Purpose of passing on that question is that bids may be advertised, proposals received and opened and contracts awarded so that work on finishing road may be started as soon as weather improves.

Chattanooga, Tenn.—Bonds for paving districts 113 and 156, amounting to \$6,604.60, have been sold by city to First National Bank of Cleveland, O., at premium of \$79.70.

Chattanooga, Tenn.—Resolution introduced by Squire G. W. Burgess of Sixth District, has been adopted to request legislature to pass enabling act authorizing Hamilton County to issue bonds in amount of \$25,000 for construction of road from Chattanooga to Sherman Heights, road to run from Lauderdale st., Glass st., between Citico furnace and Tennessee river.

Nashville, Tenn.—For purpose of repairing city reservoir and improving streets and alleys of Nashville, Davidson County delegation has introduced two bills in House asking that city of Nashville be allowed to exceed 1913 budget to extent of \$200,000 for two years in succession.

Austin, Tex.—R. R. Lewis, county attorney of Matagorda County, has obtained approval to issue of \$100,000 county road district bonds. It is proposed to build at least 60 miles of road from proceeds of sale of these bonds, according to Mr. Lewis.

Houston, Tex.—Commissioners Court will at its session order election for purpose of issuing \$1,000,000 road and bridge bonds.

Norton, Va.—Board of Supervisors of Wise County designated February 11 as day for opening bids on \$260,000 of road bonds recently voted by Gladeville and Richmond magisterial districts.

Everett, Wash.—Petition is being circulated calling for paving of Hoyt, from Hewitt ave. to Forty-first st. Plan is to surface avenue on hill from Hewitt ave. to Wall st. with vitrified brick. From Wall to Forty-first sts. surface planned is asphalt.

Janesville, Wis.—Bonds have been sold for improvement of Washington st.

CONTRACTS AWARDED.

South Bend, Ind.—For construction of 15 miles of gravel road in Lincoln Township, by Board of Commissioners of St. Josephs County to Prettyman & Haines, of Knox, Ind., at \$22,456.

Des Moines, Ia.—To Turner Improvement Co., contract for paving Euclid ave. with brick, between Sixth and 12th sts., on its bid of \$1.59 per sq. yd.

Hackensack, N. J.—For improvement of Anderson ave. rd. by Board of Freeholders of Bergen County, to Earnest Abrahams of Hackensack at \$59,122.

Hlon, N. Y.—For paving of East River and West sts., to Warren Brothers Co., at \$2.18 per sq. yd., who will pave with bitulithic.

Seattle, Wash.—By Board of Public Works for paving alley, block 23, Denry-Fuhrman Addition, to Alfred Johnson, at \$2,080.

SEWERAGE

Los Angeles, Cal.—Petition that proposed bond issue for \$610,000 for storm drain construction in Jefferson st. and Vernon ave., be submitted to voters in February, has been filed with city clerk by Sixty-eighth Street Improvement Association.

Fort Wayne, Ind.—Board has ordered plans for sewer in Lillie and Winter sts. south of Cincinnati, Hamilton & Dayton tracks.

Deerwood, Minn.—Question of having sewers and water works in Deerwood may be placed before people at spring election.

Syracuse, N. Y.—Electors of village of Liverpool will probably be asked to vote at March meeting on proposition to establish sewer board with power to employ engineer, lay out plans for sewerage system and obtain estimates as to its cost.

Salem, O.—Petition has been presented to Council Tuesday evening at their regular meeting for sanitary sewer to be placed on Railroad st., between Depot st. and Newgarden st.

WATER SUPPLY

Glendale, Ariz.—Town contemplates issue of \$30,000 bonds for purpose of purchase and improvement of water works, which will be sold to highest bidder, subject to approval of bonds by people.

Rehoboth, Del.—Town Commissioners have instructed their counsel, A. F. Polk, of Georgetown, to prepare bill to be presented to legislature to authorize Commissioners to call special election to allow taxpayers to vote on waterworks question. New bill will also carry item of \$5,000 for street and boardwalk repairs. Sum of \$25,000 is fixed in bill as cost of building water system.

Duquoin, Ill.—In accordance with provisions of franchise granted Duquoin Utility Co. five years ago, Mayor E. J. Jacobs has appointed committee of aldermen to investigate advisability of municipal ownership of waterworks.

Chisholm, Minn.—Daniel W. Mead, consulting engineer of Madison, will be engaged to give commission outline of what additions to filtration plant are necessary.

Deerwood, Minn.—Question of having waterworks and sewers in Deerwood may be placed before people at spring election.

Billings, Mont.—Plans for putting up to qualified electors of city question of municipal ownership of waterworks are being put into shape by city council, and ordinance has been adopted which provides for sale of bonds in sum of \$575,000.

Schenectady, N. Y.—Definite plans to be pursued in reorganizing Schenectady's water system will be adopted at conference between city officials, representatives of General Electric Co., Schenectady Illuminating Co. and Charles F. Schulz, illuminating and water engineer of Cleveland, O., employed by this city as consulting expert.

Fremont, O.—Installation of purification plant is recommended by state engineer.

Providence, R. I.—Greater water supply for Providence is being sought by city government. Appropriation of \$10,000 has been made so that committee can scout about northern Rhode Island and look up supply. It is said that Wallum pond, which is on Massachusetts boundary line, may be tapped.

North Yakima, Wash.—Pacific Power & Light Co. has offered to sell to city water plant at figure to be fixed by appraisers. Approximate value of water system is about \$3,000,000.

Olympia, Wash.—The new mayor advocates municipal water plant owned by city.

CONTRACTS AWARDED.

New Brunswick, N. J.—To Danforth Co., Buffalo, N. Y., for construction of mechanical filter plant of capacity of 6,000,000 gals. daily for New Brunswick.

Rawlins, Wyo.—To Mackay & Geddes, 401 Exchange Building, Denver, Colo., contract for waterworks improvements.



BESSEMER BLOCK

THE MOST UNIFORM SHALE PAVING BLOCK MADE

Makes a Uniform Pavement that is Durable, Sanitary and Always in Repair

BESSEMER LIMESTONE COMPANY, Youngstown, O.

LIGHTING AND POWER

Jacksonville, Fla.—At recent meeting of electrical committee of board of bond trustees, all bids recently received for supplying cable to be used in underground construction work, were rejected and new advertisement for estimates will be inserted and bids opened at later meeting.

Fort Wayne, Ind.—Board has under consideration request for installation of ornamental lighting on Fairfield ave. from Creighton to Rudisill.

Richmond, Ind.—Plans for changes and improvements in municipal light plant has been presented before special session of board of public works by Superintendent Nimrod Johnson. Board decided to make improvements, which will cost approximately \$70,000.

Coffeyville, Kan.—One plan for relief from gas situation is to call election for purpose of voting upon proposition either to set aside \$5,000 of city's funds or to issue that amount in bonds, proceeds to be used in making test for gas.

Bay St. Louis, Miss.—It has been decided to have electric lights erected throughout city.

Carthage, Mo.—Plans for better lighting of South Main st. will be considered by residents of that street.

Syracuse, N. Y.—That ornamental street lighting system in Syracuse be extended by addition of 150 posts, each carrying five electric lamps, and that city at large bear cost of entire system is proposal of special Lighting Committee of Chamber of Commerce.

Chattanooga, Tenn.—City Electrician Dugger has worked out plans for lighting system in Warner Park, which he will submit to commissioner.

Chattanooga, Tenn.—Ridgedale people are now engaged in campaign to secure for that section system of street lights.

CONTRACTS AWARDED.

Metropolis, Ill.—By Water & Light Department of city for a 100 K. V. A. generating unit of 2,300 volts 3-phase to Westinghouse Electric & Mfg. Co. and the A. L. Ide & Sons. P. M. Richards is superintendent.

Stonewall, Okla.—By Town Council of Stonewall contract to Don A. Tolbert of Ada for construction of electric light system, to be owned and operated by the town.

Green Bay, Wis.—Green Bay Gas & Electric Co. has been given contract by city council to light streets of city for period of ten years at price of \$66 per lamp of 2,000 candle power.

FIRE EQUIPMENT

Marshfield, Ore.—Purchase of automobile fire engine is being considered.

Reading, Pa.—The thirteen fire companies of Reading have asked for \$35,000 appropriation for 1913, the idea being to buy automobile engine for Liberty, motor truck for Washington and auto-combination for Riverside and Friendship companies.

Lynchburg, Va.—The fire commissioners are asking city for largest appropriation for coming fiscal year in order to install lot of auto-power apparatus, as well as for equipment of new station, which will soon be ready to go into commission in West End. This will give city six fire stations.

CONTRACTS AWARDED.

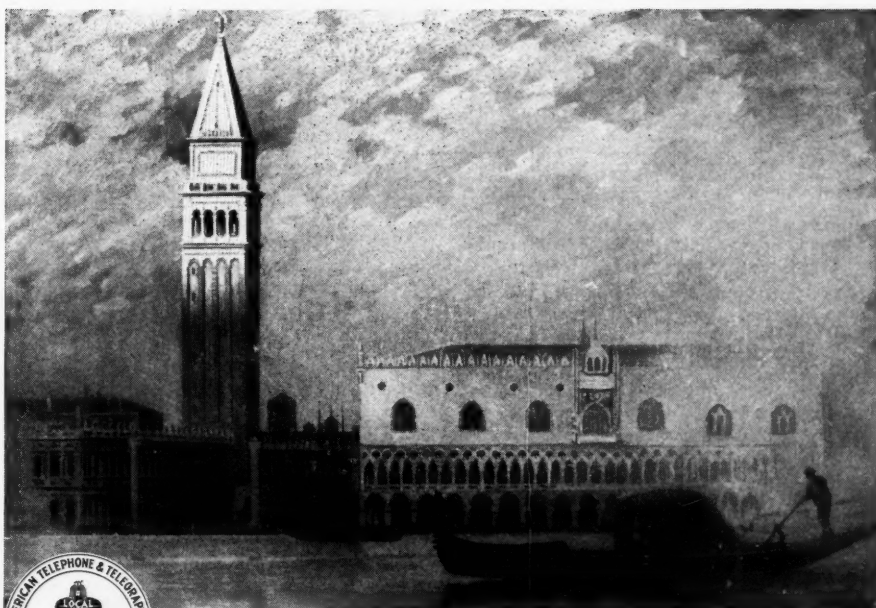
Fort Wayne, Ind.—For motor city service hook and ladder truck to Robinson Fire Apparatus Manufacturing Co., of St. Louis.

Charlotte, N. C.—For motor chemical and hose truck and 1000 ft. of hose to the American-La France Fire Engine Co. and the Fabric Fire Hose Co.

BRIDGES

St. Paul, Minn.—Widening the Robert street bridge in connection with proposed widening of street, is under consideration.

Ilion, N. Y.—A meeting of Town Board has been held at Mohawk to take preliminary action on questions of bridges over Fulmer creek in Mohawk and Steele's creek in Ilion on main street of both villages. Expense will be divided between town of German Flatts, railroad company and villages of Ilion and Mohawk.



Seven Million Watch-Towers in the Bell System

The original campanili were the watch-towers of old Venice, guarding the little republic from invasion by hostile fleets.

Later, bells were mounted in these same towers to give warning of attack and celebrate victories.

Judged by modern telephone standards, such a system of communication seems crude and inadequate.

In the civilization of today a more perfect intercommuni-

cation is essential to national safety, convenience and progress.

The Bell System binds together a nation of nearly one hundred million people, by "highways of speech" extending into every nook and corner of this great country.

Seven million Bell telephone stations are the watch-towers which exchange, daily, twenty-five million messages for the happiness, prosperity and progress of all the people.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY AND ASSOCIATED COMPANIES

One Policy

One System

Universal Service

Schenectady, N. Y.—Charles F. Stowell of Albany, recognized authority on bridge construction, has been making investigation into strength and condition of Cotton Factory Hollow viaduct preparatory to making recommendations relative to reconstruction of viaduct for general traffic.

Forsyth, N. C.—Construction of bridge across Yadkin river connecting Forsyth and Davie is being considered.

Bristol, Tenn.—The Sullivan county court has ordered construction of three steel bridges, one to span river at Kingsport, and estimated to cost \$20,000. Citizens of Kingsport have subscribed \$3,000 for this bridge. Other two bridges will be constructed, one over river on Weaver pike and other at Shady Ford, on

road leading to Mountain City, Tenn. Special levies were arranged for in order to meet this expense, which, all told, will be not less than \$50,000.

Houston, Tex.—Commissioners' Court will at its session order election for purpose of issuing \$1,000,000 bridge and road bonds.

CONTRACTS AWARDED.

Little Rock, Ark.—For construction of proposed concrete viaduct at Third st., to Hannon & Hickey, of St. Louis, Mo., at \$83,000.

Syracuse, N. Y.—For construction of portion of new bridge at Phoenix by State has been awarded to J. F. Connors, of Oswego, at about \$39,000.

MISCELLANEOUS

Dinuba, Cal.—Plans for free market for this city are being worked out by City Council.

Los Angeles, Cal.—Los Angeles will vote separately on eight distinct bonding projects for public improvements, totaling \$17,600,000, on February 25. Eight issues to be considered by voters are \$1,500,000 for aqueduct water distributing trunk line to Los Angeles; \$2,000,000 for distributing system to San Fernando valley points; \$2,500,000 for "Pasadena-Glendora high line" distributing system; \$6,500,000 for aqueduct-power distributing system; \$2,500,000 for harbor development; \$1,000,000 for municipal railroad and freight terminals; \$1,000,000 for new city hall; \$600,000 for purchase of Normal school site for municipal art center purposes.

Los Angeles, Cal.—City Attorney John W. Shenk has submitted to City Council specifications for public garbage reduction plant, under provisions of which bids can be received by city for disposal of city's refuse either by incineration or reduction.

Los Angeles, Cal.—Consulting Engineer Franklin D. Howell's plan for a 75-foot width for proposed harbor boulevard from Fourth to Fourteenth sts, San Pedro, has been adopted unanimously by City Council.

Oakland, Cal.—For appropriation of \$3,000 for construction of sub-police station in the Temescal district, on 52nd st., between Telegraph and Shattuck aves., an ordinance has been introduced before City Council. Bids have been called for construction of station which will be two stories in height.

Washington, D. C.—A prominent importer of agricultural and chemical products in European country informs American consulate that he desires to secure names of American oil refineries manufacturing petroleum pitch (petroleum pitch). Inquirer asks that correspondence be addressed to him in care of consulate submitting inquiry, No. 10212 Bureau of Manufactures.

Pensacola, Fla.—Board will advertise for bids for repairing Magnolia and Pine st. wharves, appropriation of \$1,200 for this purpose having been made by Council at its last meeting.

Indianapolis, Ind.—Plans for new greenhouse in Garfield park, to cost \$25,000, have been discussed at meeting of board of park commissioners.

Kansas City, Mo.—At special election here this city was authorized to issue \$2,950,000 in bonds, money to be used for improvements protecting city against floods and disease, to provide traffic ways and viaducts, to develop parks and boulevards and to build municipal hospitals and work houses.

Newburgh, N. Y.—Plans are now under way for purchase by city of more than 1,200 feet along river front in North End. According to plans it is proposed to make this public park and to extend park from Nicoll st. north along river front on both sides of West Shore Railroad tracks to North st. and thence west to Grand ave.

Milwaukee, Wis.—At request of Mayor Bading department of public works has prepared plans and estimates for comfort station under Grand ave. bridge. Plans were submitted to mayor and estimates show station can be built and furnished for \$4,315.

INDUSTRIAL NEWS

New Corporations.

Essex Pumping Co., Bayonne, N. J.; operate water works; capital, \$300,000. Incorporators: J. O. Shipman, Jos. H. Steinhardt, P. A. Caviccha, all of Essex Building, Newark, N. J.

The Refuse Co., Newark, N. J.; gather paper, rags, bottles, metals, etc.; capital, \$125,000. Incorporators: P. A. Cavicchia, J. H. Steinhardt, M. A. Pitichia, all of Essex Building, Newark, N. J.

The Belvidere Electric Light and Power Company, Belvidere, N. J.; operate electric light and power plants; capital, 50,000. Incorporators: S. E. Boardman, H. G. Boardman, Oxford Township, N. J.; Jos. N. Roseberry, Belvidere, N. J.

The Middle West Gas and Electric Company, Portland, Me.; making, generating, distributing and selling light, power, heat, etc.; capital, \$5,000,000. Incorporators: Albert F. Jones, T. L. Croteau, James E. Manter, all of Portland, Me.

Trinidad-Tarouba Oil Development Company; capital, \$350,000. Incorporators: Herbert E. Latter, Wilmington.

Threaded Concrete Pipe Company, Chicago, Ill.; manufacturing concrete products; capital, \$10,000. Incorporators: Albert Goetz, Max M. Grossman, Chas. A. Winston, all of Chicago, Ill.

American Culvert Company, Springfield, Ill.; capital, \$25,000. Incorporators: A. E. Hayworth, D. E. Hayworth, Wm. P. Ott, Springfield, Ill.

Seely Engineering Co., Inc., Manhattan; general dredging, contracting and engineering business; capital, \$10,000. Incorporators: John A. Seely, E. P. Beech, M. C. Bennett, all of 30 Church street, New York City.

Economy Feed Water Purifier Company, St. Louis, Mo.; capital, \$20,000. Incorporators: G. B. Randall, J. A. Rector, R. J. Kirkwood.

Arkansas Electric Company, Little Rock, Ark.; capital stock, \$20,000. C. J. Dolls, president; J. H. Carmichael, vice-president; Nick Campbell, secretary-treasurer.

Seward Electric Company, Johnstown, Pa.; \$5,000.

Indiana Gas Light Company, Noblesville, Ind.; capital, \$1,000,000; to supply electricity and artificial gas to 23 towns and cities. Incorporators: Paul A. Neuffer, Harry H. Phillips, Charles J. Horn.

Candee, B. C., Dunkirk, N. Y., has been reappointed Superintendent of Waterworks.

Brotz, Joseph, Burlington, N. J., has been appointed Chief of the Fire Department.

PROPOSALS
WATER METERS

Yazoo City, Miss.
The Public Service Commission will receive bids for water meters for the ensuing year until February 15th, 1913 at 3 o'clock P. M., when they will be publicly opened.

Companies wishing to do so may send one or two $\frac{3}{4}$ " meters to the Commission for examination and test, provided there be no expense to the Commission for said meters.

The contract letting will be influenced by price, accuracy and mechanical excellency of the meters offered, and any other feature that may later present itself.

The right is reserved to reject any or all bids without question. Specifications may be had by application to the Commission.

JAS. S. BUTLER, Superintendent,
Jan. 8, 1913. 3, 4, 5, 6

BIDS FOR PAVING.
JACKSONVILLE, FLORIDA.

Proposals will be received by the Committee on Public Works of the Board of Bond Trustees of the City of Jacksonville, at its office in the Engineering Building of the city, until 3 o'clock p. m., on Monday, February 10, 1913, for laying approximately ninety-eight thousand eight hundred and twenty-six (98,826) square yards of pavement on a concrete base, on various streets as herein named, in the City of Jacksonville, Florida. Forms of proposal and specifications, together with necessary information, may be obtained from the Chief Clerk, Engineering Department, corner Main and Orange streets, or by addressing L. D. Smoot, Chief Engineer. A certified check on a Jacksonville bank for the sum of Twenty-five Hundred (\$2,500.00) Dollars, subject to the charter and ordinances of the City of Jacksonville, must accompany each bid, and the check so given shall bind the successful bidder to make his bid of bids in due course to do said work at or under the price or prices submitted in his proposal, provided the contract or contracts under his proposal shall be awarded during the year 1913. Checks will be returned to unsuccessful bidders as soon as the work is awarded and to the successful bidder after contract is entered into and bond furnished under the Charter and after proper ordinances are passed. Envelopes containing bids should be addressed to "H. Gaillard, Chairman, Jacksonville, Florida," and should be plainly marked "Bid for Paving." The Committee reserves the right to reject any or all bids. LIST OF STREETS: Charles street, from Forest to Price; Price street, from Magnolia to Myrtle avenue; Pearl street, from Fourth to City Limits; Market street, from Eighth to City Limits; Bay streets, from Broad to Cleveland; Lee street, from Bay to Adams; North street, from Hogan to Julia; Lafayette street, from Bay to Church; Schofield street, from Hubbard to Market; Margaret street, from Riverside avenue to Park; Orange street, from Maine to Hogan; Duval street, from Davis to Stuart; Ionia street, from Union to Jessie; Lancaster Terrace, from Riverside avenue to Bulkhead; Park street, from Margaret to Forest; Washington street, from Ashley to Union; Broad street, from Ashley to State; Union street, from Cedar to Clay; Eagle street, from Hogan to Julia; Bay street, from Market to Marsh; Cedar street, from Union to State; Julia street, from Eagle to Hogans creek; Caroline street, from Laura to Julia; State street, from Madison to Davis; Clay street, from Ashley to State.

H. GAILLARD,
Chairman Committee on Public Works.

Second Hand Transits & Levels For Sale

Send for complete list before ordering.

Thoroughly Rebuilt—Guaranteed.

THE ENGINEERING AGENCY, Inc.,
Monadnock Block, Chicago

WANTED TO PURCHASE.

—A one car portable asphalt plant in good condition.

STANDARD PAVING CO.
9 South LaSalle Street, CHICAGO, ILL.